



## Appendix B ENVIRONMENTAL EVALUATION

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## **Appendix B**

### **ENVIRONMENTAL EVALUATION**

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Analysis of potential environmental impacts of proposed airport development projects is an important component of the Airport Master Plan process. The primary purpose of this chapter is to evaluate the proposed development program for Avra Valley Airport to determine whether proposed development actions could individually or collectively affect the quality of the environment.

A major component of this evaluation is to coordinate with appropriate federal, state, and local agencies to identify potential environmental concerns that should be considered prior to the design and construction of new facilities at the airport. Agency coordination consisted of a letter requesting comments and/or information regarding the proposed airport development. Issues of concern that were identified as part of this process are presented in the following discussion. The letters received from various agencies are included at the end of this appendix.

Any major improvements planned for Avra Valley Airport will require compliance with the National Environmental Policy Act of 1969, as amended (NEPA). For projects not categorically excluded, compliance with NEPA is generally satisfied by the preparation of an Environmental Assessment (EA) or an Environmental Impact Statement (EIS). This section of the master plan is intended to supply a review of environmental considerations. The information contained in this document will be analyzed and may support certain determinations by the FAA under NEPA.

## PROPOSED DEVELOPMENT

As a result of the Master Plan analysis, a number of airport improvements have been recommended for implementation over the 20-year planning period. The **Airport Layout Plan** (Chapter Five) illustrates the development proposed during this period while Chapter Six presents a general estimated schedule for the various projects listed below. It must be reiterated, however, that many future improvements for the airport are demand-based, rather than time-based, and that the actual need to improve facilities will be linked to specific and verifiable activity. The airport development schedule presented in Chapter Six, therefore, should be viewed as a flexible document which can be modified to reflect actual growth in airport activity. The following is a list of the major projects planned for completion.

### *Airside:*

- Extend Runway 12L-30R by 299 feet to an ultimate runway length of 7,200 feet.
- Extend parallel Taxiway A to match Runway 12L-30R's ultimate runway length.
- Construct new full-length parallel Taxiway E to Runway 12L-30R
- Construct high-speed exit taxiways for Runway 12L-30R.
- Extend Runway 3-21 by 499 feet to an ultimate runway length of 4,700 feet.
- Extend parallel Taxiway B to match Runway 3-21's ultimate runway length.
- Construct new parallel runway (4,700 feet long by 75 feet wide) to Runway 12L-30R.
- Construct associated full-length, parallel taxiway for the new parallel runway.
- Widen Taxiway C
- Implement GPS approach (one-half mile visibility minimum) to Runway 12L, including required MALSR approach lighting.
- Replace existing VASI-2 (visual glide slope indicator) system currently installed near each end of Runway 3-21 with PAPI-2s.
- Extend runway lighting on Runway 12L-30R and Runway 3-21.
- Relocate runway end identification lights (REIL) for Runway 12L-30R and Runway 3-21.
- Install medium intensity runway edge lighting (MIRL), runway end identification lights (REIL), runway threshold lights, and PAPI-2s for proposed parallel runway.
- Install taxiway lighting on both new and existing taxiways.
- Acquire property for: (1) Runway 12L MALSR approach lights (lighting extends 2,400 feet from runway end); (2) Building Restriction Line (BRL) control and Runway Protection Zone (RPZ) control; (3) Right-of-way for Avra Valley Road realignment.

### *Landside:*

- Construct general aviation terminal facility.
- Construct additional auto parking areas (22,400 square feet).
- Realign Avra Valley Road.
- Construct airport access roads
- Construct additional T-Hangar facilities (168 units); includes removal/relocation of two existing structures (one T-Hangar facility, one shade hangar facility).
- Construct conventional hangar facilities (101,250 square feet).

- Construct Aircraft Parking Ramp (North of Runway 30R)
- Relocate existing fuel storage facility.
- Relocate aircraft tiedown area.
- Expand/Construct Large Aircraft Parking Apron.
- Acquire property and/or reserve sites for the following future landside facilities:
  - T-Hangar development areas
  - FBO/conventional hangar parcels
  - Aviation related development parcels
  - Aircraft wash rack facility
  - Airport Rescue and Firefighting Facility (ARFF)

## **ENVIRONMENTAL CONSEQUENCES - SPECIFIC IMPACTS**

The following text briefly examines the airport development actions and their potential to cause significant environmental impact. The following subsections address each of the specific impact categories outlined by *FAA Order 5050.4A*.

### **NOISE**

Aircraft sound emissions are often the most noticeable environmental effect an airport will produce on the surrounding community. If the sound is sufficiently loud or frequent in occurrence, it may interfere with various activities or otherwise be considered objectionable.

To determine noise related impacts that the proposed development could have on the environment surrounding Avra Valley Airport, noise exposure patterns were analyzed for the years 1998 and 2020. The 1998 contours represent aircraft noise based on the recorded number of aircraft operations obtained from estimates provided by the Airport's primary FBO, Tucson Aeroservice Center, Inc. The 2020 contours represent the highest number of forecast aircraft operations of the 20-year planning period (see Chapter Two).

### **Noise Contour Development**

The basic methodology employed to define aircraft noise levels involves the use of a mathematical model for aircraft noise prediction. The *Yearly Day-Night Average Sound Level (DNL)* is used in this study to assess aircraft noise. DNL is the metric currently accepted by the Federal Aviation Administration (FAA), the Environmental Protection Agency (EPA), and the Department of Housing and Urban Development (HUD) as an appropriate measure of cumulative noise exposure. These three federal agencies have each identified the 65 DNL noise contour as the threshold of incompatibility, meaning levels below 65 DNL are considered compatible with all underlying land uses. Most federally funded airport noise studies use DNL as the primary metric for evaluating noise.

In addition, the 60 DNL noise contour is identified in response to Arizona House Bill 2404 (signed into law, Spring 1999) which added Arizona Revised Statute (ARS) §28-8486 pertaining to all public airports in the State. This statute requires "The state real estate department shall have and make available to the public on request a map showing the exterior boundaries of each territory in the vicinity of a public airport." Pursuant to this new legislation the Arizona Department of Real Estate has requested that all public airports provide the department with the following data: (1) A map or chart showing the traffic pattern airspace, and (2) an aircraft noise contour map or chart, if available, showing nearby property that experiences a day-night average sound level of 60 decibels or higher.

DNL is defined as the average A-weighted sound level as measured in decibels (dB), during a 24-hour period; a 10 dB weighting is applied to noise events occurring at night (10:00 p.m. to 7:00 a.m.). DNL is a summation metric which allows objective analysis and can describe noise exposure comprehensively over a large area.

Since noise decreases at a constant rate in all directions from a source, points of equal DNL noise levels are routinely indicated by means of a contour line. The various contour lines are then superimposed on a map of the airport and its environs. It is important to recognize that a line drawn on a map does not imply that a particular noise condition exists on one side of the line and not on the other. DNL calculations do not precisely define noise impacts. Nevertheless, DNL contours can be used to: (1) highlight existing or potential incompatibilities between an airport and any surrounding development; (2) assess relative exposure levels; (3) assist in preparation of airport environs land use plans; and (4) provide guidance in the development of land use control devices, such as zoning ordinances, subdivision regulations and building codes.

The noise contours for Avra Valley Airport were developed from the Integrated Noise Model, Version 5.2. The Integrated Noise Model (INM) was developed by the Transportation Systems Center of the U.S. Department of Transportation at Cambridge, Massachusetts, and has been specified by the FAA as one of two models acceptable for federally funded noise analysis.

The INM is a computer model which accounts for each aircraft along flight tracks during an average 24-hour period. These flight tracks are coupled with separate tables contained in the data base of the INM which relate to noise, distances and engine thrust for each make and model of aircraft type selected.

Recorded numbers of aircraft operations for 1998 and forecasts of future aviation activity in 2020 were used as input to the noise model. Forecasts of future aviation activity at Avra Valley Airport were developed as part of the planning process.

Computer input files for the noise analysis assumed implementation of the recommended development of the airport as identified on the Airport Layout Plan. The input files contained operational data, runway utilization, aircraft flight tracks, and fleet mix as projected in the plan. For more detailed information on the aviation forecasts for Avra Valley Airport refer to **Chapter Two, Aviation Demand Forecasts.**

Basic assumptions used as input to the INM noise model are presented in **Table B1, Noise Contour Input Data**.

<b>Table B1 Avra Valley Airport - Noise Contour Input Data</b>		
	<b>Percentage of Runway Usage</b>	
	<b>Existing - 1998 (71,300 annual operations)</b>	<b>Future - 2020 (150,000 annual operations)</b>
Runway 12L	45%	25%
Runway 30R	45%	25%
Runway 3	1%	1%
Runway 21	9%	9%
Runway 12R	--	20%
Runway 30L	--	20%
	<b>Percent Day/Night Split of Total Operations</b>	
	<b>Day</b>	<b>Night</b>
Existing - 1998 (Runways 12L-30R and 3-21)	95%	5%
Future - 2020 (All Runways)	90%	10%
<b>Note:</b> Operations for 1998 are based on estimates provided by Tucson Aeroservice Center, Inc. Year 2020 operations are from forecasts developed by Coffman Associates, Inc.		

## Results of Noise Analysis

The aircraft noise contours generated from aviation forecasts for Avra Valley Airport are illustrated on **Exhibit B1, 1998 Aircraft Noise Exposure** and **Exhibit B2, 2020 Aircraft Noise Exposure**.

For the year 1998, the 65 DNL noise contour for Runway 12L-30R extends approximately 130 feet northwest of the existing Runway 12L end, and approximately 105 feet southeast of the Runway 30 end of the runway. By the year 2020, Runway 12L-30R's 65 DNL noise contour would be expected to extend approximately 378 feet northwest from the Runway 12L end, and approximately 328 feet southeast from the Runway 30 end.

For Runway 3-21, the 1998 65 DNL noise contour extends 90 feet northeast of the Runway 21 end while falling 2,075 feet short of the Runway 3 end. The 2020 65 DNL contour for this same runway extends 110 feet northeast of the Runway 21 end, and 400 feet southwest of the Runway 3 end.

Meanwhile, for the proposed parallel Runway 12R-30L, the Year 2020 65 DNL noise contour would be expected to extend approximately 370 feet northwest from the Runway 12R end, and approximately 355 feet southeast of the Runway 30L end.

Based on 1998 operational levels, the combined 65 DNL and above noise contour for Runways 12L-30R and 3-21 encompassed 0.31 square miles; for the 2020 year forecasts, the combined area for all runways for the 65 DNL and above contour would be expected to encompass 0.69 square miles. **Table B2, Area of Noise Contour**, reports the estimated size of each contour for the years 1998 and 2020. Currently, the 65 DNL noise contour is contained mostly within existing Airport property with the exception of two small portions which extend off of Airport property near the Runway 12L end. The land encompassed by the existing 65 DNL contour is currently classified as vacant or open land use and is, therefore, compatible with the 65 DNL noise level. For the year 2020, again, most of the 65 DNL contour is located completely within Airport property except for two sections southwest of the proposed parallel Runway 12R-30L. These two sections should be classified as 65 DNL compatible land uses in order to avoid future land use incompatibility issues.

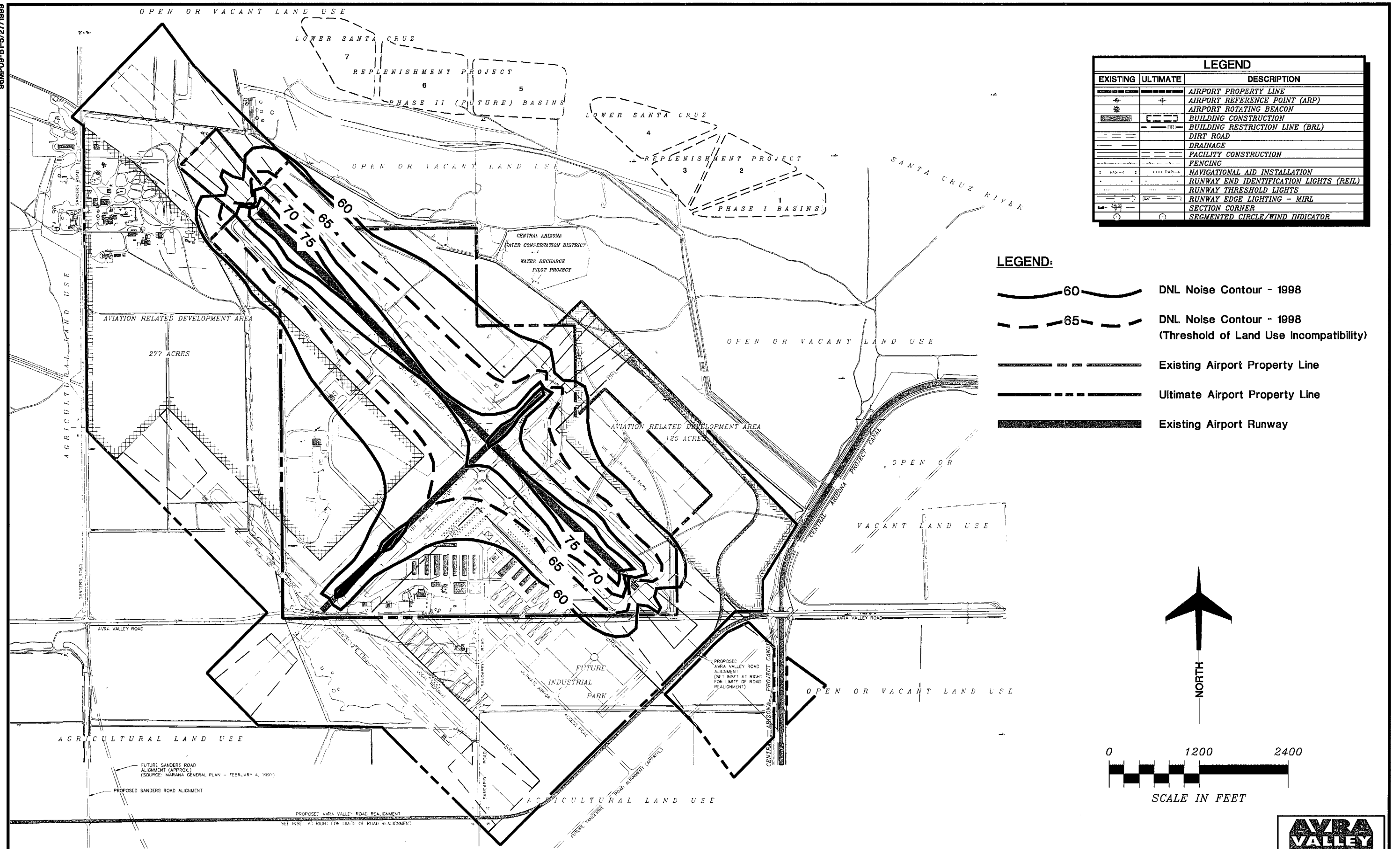
Furthermore, examination of the two noise exposure exhibits reveals that although the 60 DNL noise contour does extend outside the Airport boundary in several places it does not appear to adversely effect any existing land uses which may be covered by ARS §28-8486.

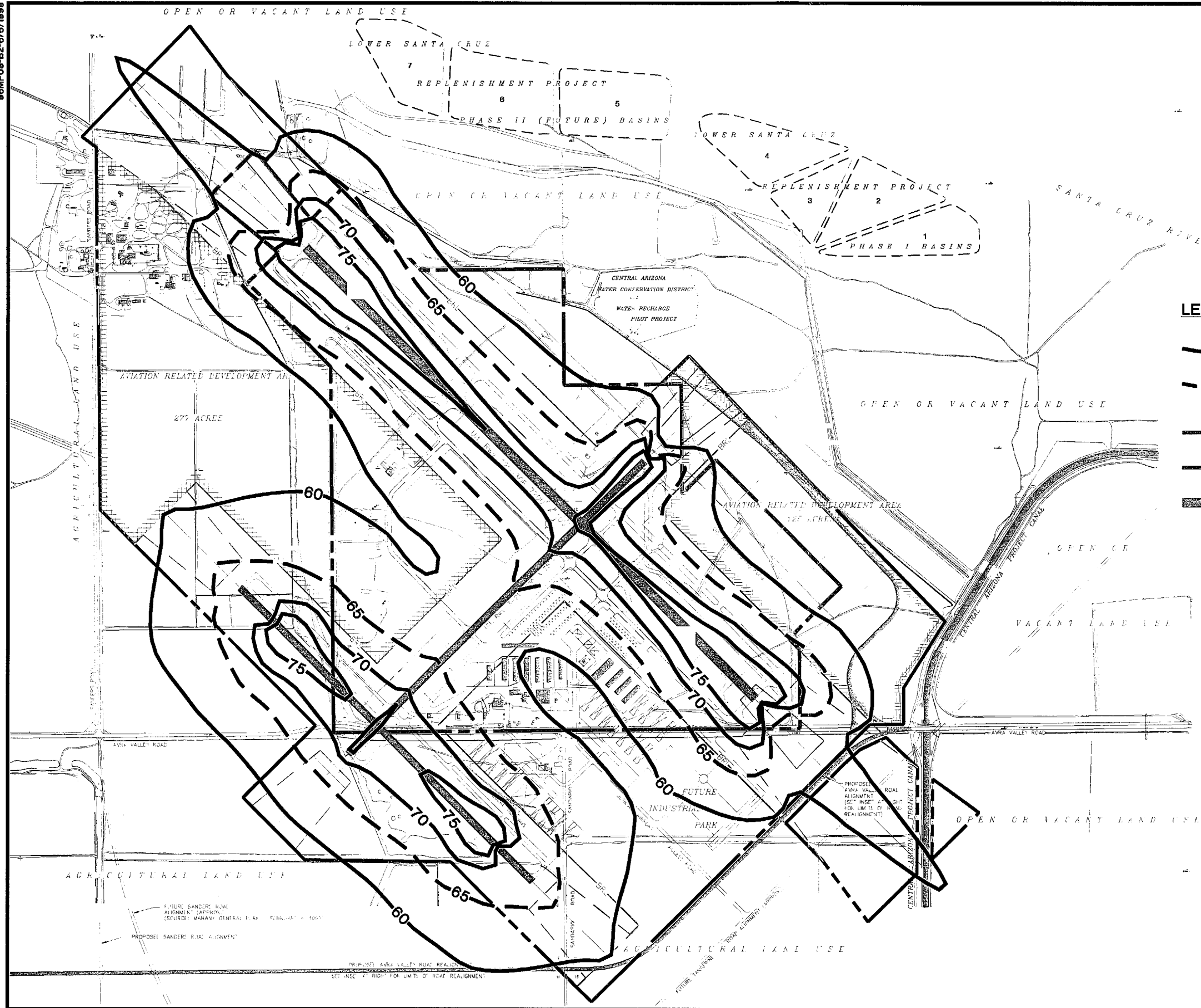
<b>TABLE B2</b> <b>Area of Noise Contours</b> <b>Avra Valley Airport</b>				
	Noise Contour Area (in square miles)			
Year	60 DNL	65 DNL	70 DNL	75 DNL
1998	0.62	0.31	0.12	0.04
2020	1.51	0.69	0.31	0.10
<b>Note:</b> Noise Contour Area for year 1998 is the combined area for Runway 12L-30R and Runway 3-21, and Noise Contour Area for year 2020 equals the combined area for all runways				

## COMPATIBLE LAND USE

Aircraft noise contours can be used as a guide to determine potential incompatible land uses in the vicinity of airports. To identify noise sensitive land uses potentially impacted by aircraft noise, the noise contours are overlaid on current and future land use maps for the airport and vicinity.

*Federal Aviation Regulation (FAR) Part 150* recommends guidelines for planning land use compatibility within various levels of aircraft noise exposure (**Exhibit B3, Land Use Guidelines**). As the title indicates, these are guidelines only; *FAR Part 150* explicitly states that determinations of noise compatibility and regulation of land use are purely local responsibilities.

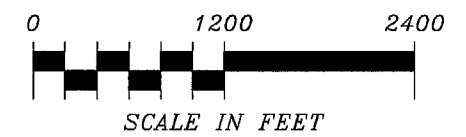




LEGEND		
EXISTING	ULTIMATE	DESCRIPTION
---	---	AIRPORT PROPERTY LINE
+	+	AIRPORT REFERENCE POINT (ARP)
*	*	AIRPORT ROTATING BEACON
---	---	BUILDING CONSTRUCTION
---	---	BUILDING RESTRICTION LINE (BRL)
---	---	DIRT ROAD
---	---	DRAINAGE
---	---	FACILITY CONSTRUCTION
---	---	FENCING
---	---	NAVIGATIONAL AID INSTALLATION
---	---	RUNWAY END IDENTIFICATION LIGHTS (REIL)
---	---	RUNWAY THRESHOLD LIGHTS
---	---	RUNWAY EDGE LIGHTING - MRL
---	---	SECTION CORNER
---	---	SEGMENTED CIRCLE/WIND INDICATOR

**LEGEND:**

- 60 DNL Noise Contour - 2020
- 65 DNL Noise Contour - 2020 (Threshold of Land Use Incompatibility)
- Existing Airport Property Line
- Ultimate Airport Property Line
- Ultimate Airport Runway



LAND USE	Community Noise Equivalent Level (CNEL) in Decibels					
	Below 65	65-70	70-75	75-80	80-85	Over 85
<b>RESIDENTIAL</b>						
Residential, other than mobile homes and transient lodgings	Y	N <sup>1</sup>	N <sup>1</sup>	N	N	N
Mobile home parks	Y	N	N	N	N	N
Transient lodgings	Y	N <sup>1</sup>	N <sup>1</sup>	N <sup>1</sup>	N	N
<b>PUBLIC USE</b>						
Schools	Y	N <sup>1</sup>	N <sup>1</sup>	N	N	N
Hospitals and nursing homes	Y	25	30	N	N	N
Churches, auditoriums, and concert halls	Y	25	30	N	N	N
Government services	Y	Y	25	30	N	N
Transportation	Y	Y	Y <sup>2</sup>	Y <sup>3</sup>	Y <sup>4</sup>	Y <sup>4</sup>
Parking	Y	Y	Y <sup>2</sup>	Y <sup>3</sup>	Y <sup>4</sup>	N
<b>COMMERCIAL USE</b>						
Offices, business and professional	Y	Y	25	30	N	N
Wholesale and retail-building materials, hardware and farm equipment	Y	Y	Y <sup>2</sup>	Y <sup>3</sup>	Y <sup>4</sup>	N
Retail trade-general	Y	Y	25	30	N	N
Utilities	Y	Y	Y <sup>2</sup>	Y <sup>3</sup>	Y <sup>4</sup>	N
Communication	Y	Y	25	30	N	N
<b>MANUFACTURING AND PRODUCTION</b>						
Manufacturing, general	Y	Y	Y <sup>2</sup>	Y <sup>3</sup>	Y <sup>4</sup>	N
Photographic and optical	Y	Y	25	30	N	N
Agriculture (except livestock) and forestry	Y	Y <sup>6</sup>	Y <sup>7</sup>	Y <sup>8</sup>	Y <sup>8</sup>	Y <sup>8</sup>
Livestock farming and breeding	Y	Y <sup>6</sup>	Y <sup>7</sup>	N	N	N
Mining and fishing, resource production and extraction	Y	Y	Y	Y	Y	Y
<b>RECREATIONAL</b>						
Outdoor sports arenas and spectator sports	Y	Y <sup>5</sup>	Y <sup>5</sup>	N	N	N
Outdoor music shells, amphitheaters	Y	N	N	N	N	N
Nature exhibits and zoos	Y	Y	N	N	N	N
Amusements, parks, resorts, and camps	Y	Y	Y	N	N	N
Golf courses, riding stables, and water recreation	Y	Y	25	30	N	N

The designations contained in this table do not constitute a Federal determination that any use of land covered by the program is acceptable under Federal, State, or local law. The responsibility for determining the acceptable and permissible land uses and the relationship between specific properties and specific noise contours rests with the local authorities. FAA determinations under Part 150 are not intended to substitute federally determined land uses for those determined to be appropriate by local authorities in response to locally determined needs and values in achieving noise compatible land uses.

See other side for notes and key to table.



## KEY

<b>Y (Yes)</b>	Land Use and related structures compatible without restrictions.
<b>N (No)</b>	Land Use and related structures are not compatible and should be prohibited.
<b>NLR</b>	Noise Level Reduction (outdoor to indoor) to be achieved through incorporation of noise attenuation into the design and construction of the structure.
<b>25, 30, 35</b>	Land Use and related structures generally compatible; measures to achieve NLR of 25, 30, or 35 dB must be incorporated into design and construction of structure.

## NOTES

- 1 Where the community determines that residential or school uses must be allowed, measures to achieve outdoor to indoor Noise Level Reduction (NLR) of at least 25 dB and 30 dB should be incorporated into building codes and be considered in individual approvals. Normal residential construction can be expected to provide a NLR of 20 dB, thus, the reduction requirements are often stated as 5, 10, or 15 dB over standard construction and normally assume mechanical ventilation and closed windows year round. However, the use of NLR criteria will not eliminate outdoor noise problems.
- 2 Measures to achieve NLR of 25 dB must be incorporated into the design and construction of portions of these buildings where the the public is received, office areas, noise sensitive areas or where the normal noise level is low.
- 3 Measures to achieve NLR of 30 dB must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise sensitive areas, or where the normal noise level is low.
- 4 Measures to achieve NLR of 35 dB must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise sensitive areas, or where the normal noise level is low.
- 5 Land use compatible provided special sound reinforcement systems are installed.
- 6 Residential buildings require a NLR of 25.
- 7 Residential buildings require a NLR of 30.
- 8 Residential buildings not permitted.

Source : **F.A.R. Part 150**, Appendix A, Table 1.



These guidelines indicate that mobile home parks, outdoor music shells and amphitheaters are incompatible within areas affected by noise levels above 65 DNL. The federal guidelines note, however, that where local communities determine that these uses are permissible, sound attenuation measures should be used. Several other uses, including hospitals, nursing homes, churches, auditoriums, livestock breeding, amusement parks, resorts, and camps, are considered incompatible at levels above 75 DNL.

Experience has shown that new residential development should be prohibited in areas subject to noise exceeding 65 DNL, unless local conditions indicate that soundproofed residences would not be adversely impacted by noise. The most obvious condition would be the presence of high background noise levels which are often found in high-density urban areas.

Where existing residential uses occur, further expansion should be discouraged. Measures to mitigate noise impacts should be taken if further residential development cannot be prevented. In some communities where there is a severe shortage of developable land, local governments often are compelled to permit more residential development within the 65 DNL contour. In such cases, the FAA strongly recommends soundproofing. A requirement for noise easements as a condition of development approval might also be desirable.

Based on the results of the noise modeling efforts, the 60 or 65 DNL noise contours for 1998 and 2020 would not extend over residential structures or other noise-sensitive land uses; therefore, no significant impact is expected.

## **SOCIAL IMPACTS**

Social impacts known to result from airport improvement projects are often associated with the relocation of residences or businesses or other community disruptions. Development of the proposed improvements to Avra Valley Airport will require the acquisition of private property and may result in the relocation or removal of some residences, businesses, or farmland. The following paragraphs describe the mitigation requirements should such displacement occur.

*FAA Order 5050.4A* provides that where the relocation of a residence, business or farmland is involved, the provisions of the *Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (URARPAPA)* must be met. The Act requires that home owners and tenants be offered assistance in finding a new home or new site, and in relocation costs. Relocation assistance includes help in finding a comparable replacement dwelling which meets the FAA's "decent, safe, and sanitary" criteria and in moving costs. Due to the developing nature of the surrounding area and the presence of similar properties or homes, it is expected that owners affected by the proposed development of the Airport Master Plan Concept would be able to find comparable housing or land within the greater Marana area.

*FAA Order 5050.4A* also provides that if businesses or farm operations would be relocated as a result of an airport-related project, *URARPAPA* would again apply. The Act requires that the owner of the business or farm operations also be offered assistance in finding a location and reestablishing the business.

Pima County will also need to comply with *FAA Order 5100.37A, Land Acquisition and Relocation Assistance for Airport Projects*, and *FAA Advisory Circular 150/5100-17, Land Acquisition and Relocation Assistance for Airport Improvement Program Assisted Projects*. These two documents describe the process necessary to comply with *URARPAPA*.

Because of the surrounding development patterns, the proposed Airport improvements are not anticipated to significantly divide or disrupt an established community, interfere with orderly planned development, or create a short-term, appreciable change in employment.

## **INDUCED SOCIOECONOMIC IMPACTS**

Induced socioeconomic impacts address those secondary impacts to surrounding communities resulting from the proposed development, including shifts in patterns of population movement and growth, public service demands, and changes in business and economic activity to the extent influenced by the airport development. According to *FAA Order 5050.4A*, "Induced impacts will normally not be significant except where there are also significant impacts in other categories, especially noise, land use or direct social impacts."

Significant shifts in patterns of population movement or growth or public service demands are not anticipated as a result of the proposed development. It is expected, however, that the proposed new airport development would potentially induce positive socioeconomic impacts for the community over a period of years. The airport, with expanded facilities and services would be expected to attract additional users. It is expected to encourage tourism, industry, and trade and to enhance the future growth and expansion of the community's economic base. Future socioeconomic impacts resulting from the proposed development would be expected to be primarily positive in nature.

## **AIR QUALITY**

The federal government has established a set of health-based ambient air quality standards (NAAQS) for the following six pollutants: carbon monoxide (CO), nitrogen dioxide (NO<sub>x</sub>), sulphur dioxide (SO<sub>x</sub>), ozone, lead, and PM10 (particulate matter of 10 microns or smaller). There are two air quality nonattainment areas located within the vicinity Avra Valley Airport, meaning that they are currently listed as not meeting federal health standards for air pollution levels, including particulates. The first of these areas, the Tucson CO Nonattainment Area encompasses most of the Tucson Metropolitan Area while the second, the Rillito PM-10 Nonattainment Area is a much smaller area located approximately 3.5 miles east of the Airport. The Airport itself, however, is located outside of these nonattainment areas. Descriptions of each of these air quality areas which were obtained from the Arizona Department of Environmental Quality (ADEQ) web site ([www.adeq.state.az.us/air/plan/non.htm](http://www.adeq.state.az.us/air/plan/non.htm)) follow:

### **Tucson CO Nonattainment Area**

**Emission Sources:** Vehicular emissions.

**Status:** The Tucson CO Nonattainment Area is presently "unclassifiable." The last violation of the CO National Ambient Air Quality Standard (NAAQS) occurred in 1984. The Limited Maintenance Plan for the Tucson Carbon Monoxide Area was submitted to the Environmental Protection Agency (EPA) on April 21, 1996. The Plan has been deemed complete and is currently undergoing EPA review. Once approved, the area will be redesignated to attainment.

#### **Rillito PM-10 Nonattainment Area**

**Emission Sources:** One major stationary source - Arizona Portland Cement Company.

**Status:** Rillito PM-10 State Implementation Plan was submitted to the EPA on April 22, 1994. As a result of the installation Reasonably Available Control Measures to control source emissions, there have been no exceedences of the 24-hour or annual PM-10 standard from 1988 through 1996.

According to *FAA Order 5050.4A* and the handbook "Air Quality Procedures for Civilian Airports and Air Force Bases" Report No. FAA-EE-97-03, if the Proposed Action is in a state which does not have applicable indirect source review (ISR) requirements, as with Arizona, then projected airport activity levels are examined. According to the handbook, air quality analysis is not required for Avra Valley Airport since the airport has less than 180,000 annual general aviation operations forecasted during the planning period.

The Arizona Department of Environmental Quality (ADEQ), was contacted to determine the potential impacts the proposed development would have on air quality. Although no response was received, they typically are concerned with any potential release (i.e., a spill, leak, emission, discharge, escape, leach or disposal) of a regulated substance into the air, groundwater, surface water or subsurface soils. ADEQ should be contacted again as part of any NEPA required documentation, such as an EA or an EIS to confirm their response.

During construction of proposed development items, steps should be taken to minimize the amount of particulate matter (dust) generated, including incidental emissions caused by strong winds, as well as tracking of dirt off the construction sites by machinery and trucks. The generation of fugitive dust as a result of construction activities is anticipated due to the movement of heavy construction equipment and the exposure and disturbance of surface soils. This impact is expected to be both temporary and localized. In addition, portable sources of air pollution, such as rock, sand, gravel and asphaltic concrete plants are required to be permitted by ADEQ prior to commencing operations.

The governor of the State of Arizona must certify, termed air quality certification, that there is reasonable assurance that the proposed runway extensions and parallel runway are located, designed, constructed, and operated in compliance with the applicable air quality standards.

#### **WATER QUALITY**

Water quality concerns, related to airport expansion most often relate to domestic sewage disposal, increased surface runoff and soil erosion, and the storage and handling of fuel, petroleum, solvents, etc. As previously discussed, ADEQ was contacted but no response was received. Typically ADEQ

notes that their concerns focus on any potential release (i.e., a spill, leak, emission, discharge, escape, leach or disposal) of a regulated substance into the air, groundwater, surface water or subsurface soils.

Currently, sanitary sewage disposal is not provided at the Airport. Given the type of proposed development, a commercial-type sanitary septic system with a capacity to service the combined airport facilities should be considered.

As growth in aviation activity occurs, fuel storage facilities will become necessary. Fuel storage facilities must be designed, constructed and maintained in compliance with Federal, State and local regulations, and must be registered with ADEQ. These regulations include standards for storage tank construction materials, the installation of leak or spill detection devices, and regulations for stormwater discharge.

Further consideration must be given as to how the Airport would handle waste from any aircraft wash rack or maintenance facilities. Of crucial concern would be spills or leaks of substances that could filter through the soils and contaminate groundwater resources.

Construction of the proposed improvements will result in an increase in impermeable surfaces and a resulting increase in surface runoff from both landside and airside facilities. Stormwater flowing over impermeable surfaces may pick up petroleum product residues and, if not controlled, transport them off site. The proposed development might result in short-term impacts on water quality, particularly suspended sediments, during and shortly after precipitation events during the construction phase. Recommendations established in FAA Advisory Circular 150/5370-10 *Standards for Specifying Construction of Airports, Item P-156, Temporary Air and Water Pollution, Soil Erosion and Siltation Control* should be incorporated in project design specifications to mitigate potential impacts. These standards include temporary measures to control water pollution, soil erosion, and siltation through the use of fiber mats, gravel, mulches, slope drains, and other erosion control methods.

In accordance with Section 402(p) of the *Clean Water Act*, as added by Section 405 of the *Water Quality Act of 1987*, a *National Pollution Discharge Elimination System* (NPDES) General Permit is required from the Environmental Protection Agency for the operation of the Airport. NPDES requirements apply to industrial facilities, including airports and all construction projects that disturb five or more acres of land.

With regard to construction activities, Pima County and all applicable contractors will need to comply with the requirements and procedures of the NPDES General Permit, including the preparation of a *Notice of Intent* and a *Stormwater Pollution Prevention Plan*, prior to the initiation of project construction activities.

The construction program, as well as specific characteristics of project design, should incorporate *Best Management Practices* (BMPs) to reduce erosion, minimize sedimentation, control non-stormwater discharges, and protect the quality of surface water features potentially affected. BMPs are defined as nonstructural and structural practices that provide the most efficient and practical means of reducing or preventing pollution of stormwater. The selection of these practices at Avra

Valley Airport should be based on the site's characteristics and focus on those categories of erosion factors within the contractor's control, including: (1) construction scheduling, (2) limiting exposed areas, (3) runoff velocity reduction, (4) sediment trapping, and (5) good housekeeping practices. Inspections of the construction site and associated reporting may be required.

The Department of the Army, Corps of Engineers, was contacted, however, no response was received. On comparable projects in the past they have expressed the following concern: That construction activities associated with airport development may require a Department of the Army permit issued under Section 404 of the Clean Water Act, noting that a 404 permit would be required for the discharge of dredges or fill material into the waters of the United States, including adjacent wetlands. This is discussed further in the section titled Wetlands.

Finally, no significant impacts are expected to the two groundwater recharge-related projects, known as the High Plains Effluent Recharge Project (HERP) and the Lower Santa Cruz River Replenishment Project (LSCR), which are currently in-progress or planned for the areas immediately north and northeast of the Airport. PDOT's Floodplain Management Division reviewed the Chapter Four Alternatives and expressed concern over Alternatives 3 and 4, and a preference for Alternatives 1 and 2. The recommended Master Plan concept incorporated the airside recommendations of Alternatives 1 and 2, which offer no additional impacts beyond the existing Airport conditions to these two projects. The Floodplain Management Division has been included in the master plan's "draft" final report review list for any additional comments they might have. Furthermore, bird-strike analysis and mitigation plans, as they relate to Avra Valley Airport, were conducted and implemented in 1997-98 for both of these projects following coordination, review, and approval with the FAA. These plans were reviewed and considered by Coffman Associates in the course of the development of this Master Plan.

As with air quality, the governor of the State of Arizona must certify, termed water quality certification, that the proposed runway extensions and parallel runway are located, designed, constructed, and operated in compliance with the applicable water quality standards.

#### **DEPARTMENT OF TRANSPORTATION ACT, SECTION 4(F) LANDS**

Paragraph 47e, *FAA Order 5050.4A* provides the following.

*(7)(a) "Section 4(f) provides that the Secretary shall not approve any program or project which requires the use of any publicly-owned land from a public park, recreation area, or wildlife and waterfowl refuge of national, state or local significance, or any land from an historic site of national, state or local significance as determined by the officials having jurisdiction thereof unless there is no feasible and prudent alternative to the use of such land and such program includes all possible planning to minimize harm."*

*(7)(b) "...When there is no physical taking but there is the possibility of use of or adverse impacts to Section 4(f) land, the FAA must determine if the activity associated with the proposal conflicts*

*with or is compatible with the normal activity associated with this land. The proposed action is compatible if it would not affect the normal activity or aesthetic value of a public park, recreation area, refuge, or historic site. When so construed, the action would not constitute use and would not, therefore, invoke Section 4(f) of the DOT Act."*

The nearest Section 4(f) land is Saguaro National Park, located approximately 5 miles south of Avra Valley Airport. Although the proposed Airport expansion does require additional land acquisition, the recommended development is not anticipated to impact any Section 4(f) properties, including Saguaro National Park, either directly or indirectly.

### **HISTORIC, ARCHITECTURAL, ARCHAEOLOGICAL AND CULTURAL RESOURCES**

Determination of a project's environmental impact to historic and cultural resources is made under guidance in the *National Historic Preservation Act of 1966*, as amended, and the *Archeological and Historic Preservation Act of 1974*. The *National Historic Preservation Act of 1966*, as amended, requires that an initial review be made of a project's *Area of Potential Effect* (APE) to determine if any properties in or eligible for inclusion in the National Register of Historic Places are present in the area. The *Archeological and Historic Preservation Act of 1974* describes the process when consultation with resource agencies indicate that there may be an impact on significant scientific, prehistoric, historic, archeological, or paleontological resources. The process provides for the preparation of a professional resource survey of the area to be impacted.

The Arizona State Historic Preservation Officer (SHPO) was contacted regarding the potential presence of historical and cultural resources within the area of the proposed development. In their letter dated January 13, 1999, they indicated that the airport property had been surveyed for archaeological resources in the past. Several sites were identified. While much of the area of potential impact had been previously surveyed, the SHPO recommended that undisturbed areas be resurveyed, along with any acquisition areas. They further indicated that to date no survey had been performed to identify historic structures. As the airport had previously served as a military airfield during World War II, there is the potential for structures eligible for listing on the National Register to be present at the facility.

The Pima County Archaeology and Historic Preservation Office (AHPO) was contacted, by phone, for information regarding the previously completed surveys. They identified that three surveys encompassing four areas had been performed at the airport in the past. While the surveys encompassed the great majority of existing airport facilities, they did not incorporate areas identified in the Airport Master Plan Update for the proposed parallel runway/taxiway, T-hangars, corporate hangars, industrial air park, or aviation-related development.

Prior to relocation or demolition of any structures associated with the military base, a determination of eligibility for listing on the National Register will need to be made. This potentially effects the

proposed removal of both the T-Hangar facility, and T-shade structure, whose locations are reflected on the ALP shown in Chapter Five.

Prior to acquisition of property for development purposes, the SHPO recommends a Phase I Cultural Resource Survey and Assessment prepared by a qualified cultural resource specialist. Because the property is owned by Pima County, the specialist must be permitted by the Arizona State Museum. In addition, the SHPO recommends a similar survey be performed prior to any ground disturbing activities on existing airport property, even in those areas previously surveyed. Where federal funding is involved in project implementation, further coordination between the FAA and SHPO will be required under Section 106 of the *National Historic Preservation Act*.

Following the completion of all appropriate and required surveys, the SHPO will make a determination as to the proposed project's effect on any property listed or eligible for listing in the National Register utilizing the *Criteria of Effect* (36 CFR Part 800.3(a)). Should the proposed action result in a determination of effect on historic, architectural, archaeological, or cultural resources, then the *Criteria of Adverse Effect* (36 CFR Part 800.3(b)) is applied. The results of this analysis are either a Determination of No Adverse Effect or a Determination of Adverse Effect.

## **BIOTIC COMMUNITIES AND THREATENED AND ENDANGERED SPECIES OF FLORA AND FAUNA**

As part of this evaluation, the U.S. Department of the Interior, Fish and Wildlife Service (USFWS) and the Arizona Game and Fish Department (AG&F) were contacted to request information regarding potential impacts to threatened or endangered species or species of special concern.

In their letter dated December 23, 1998, the USFWS provided a list of protected species in Pima County detailing 18 species of flora and fauna classified as "listed, proposed or candidate species." The letter stresses that the information contained lists those species "which may occur in your project area (Pima County)." They further identify that a site-specific survey "may be needed to verify the presence or absence of a species or its habitat as required for the evaluation of proposed project-related impacts."

The AG&F responded in a letter dated January 7, 1999. Enclosed with the letter was an attachment listing several "special status species" which "are known to occur in the vicinity of the above-referenced project and are likely to occur on-site to the degree that the species habitat requirements are present." The letter further stated that "Based on consideration of project-related information provide to the Department, there appears to be little likelihood that expansion of Avra Valley Airport will adversely impact the State's wildlife resources."

The letters from the USFWS and AG&F, along with attached species description lists, are provided at the end of this appendix.

A biological evaluation was completed at the Airport on October 8, 1997. This evaluation was conducted in order to provide biological resources information needed to complete a Notice Of Intent (NOI) form for Multi-Sector General Permits (MSGP) for storm water discharges at Avra Valley

Airport. The evaluation determined that none of the then identified 17 species of federally listed threatened, endangered or candidate species for Pima County were known to occur in proximity to the facility, nor was any storm water discharges from the Airport expected to adversely affect any federally listed species occurring in Pima County. A copy of this evaluation entitled *Technical Memorandum, RE: Biological Evaluation for Avra Valley Airport* by WestLand Resources, Inc., dated October 22, 1997, is provided at the end of this appendix and summarizes the results of the biological evaluation. No significant impacts to protected species are expected to occur as a result of the proposed development program.

## **COASTAL MANAGEMENT PROGRAM AND COASTAL BARRIERS**

The proposed development of Avra Valley Airport is not located within the jurisdiction of a State Coastal Management Program. The Coastal Zone Barrier resources system consists of undeveloped coastal barriers along the Atlantic and Gulf Coasts. These resources are well outside of the sphere of influence of Avra Valley Airport and its vicinity, and do not apply to the proposed development.

## **WILD AND SCENIC RIVERS**

According to the National Parks Service's Wild and Scenic Rivers List ([www.nps.gov](http://www.nps.gov)), the proposed development of Ajo Municipal Airport is not located within the vicinity of a designated wild and scenic river. No impacts to wild and scenic rivers are anticipated as a result of the proposed Airport development.

## **WETLANDS**

Prior to any development activities, the airport sponsor should request a jurisdictional delineation from the U.S. Army Corps of Engineers for the development area including the future proposed airport property. This delineation would identify any waters of the U.S., including wetlands and intermittent streams, under jurisdiction of this agency. If the proposed construction could directly or indirectly affect any waters of the U.S., the project might require a U.S. Army Corps of Engineers permit per *Section 404 of the Clean Water Act*. An examination of the USGS 7.5 minute quadrangles reveals no "bluelines" in the area encompassing both existing and proposed Airport property which should negate the requirement for any Section 404 permit.

## **FLOODPLAINS**

Floodplains are defined in *Executive Order 11988, Floodplain Management*, as "the lowland and relatively flat areas adjoining inland and coastal waters...including at a minimum, that area subject to a one percent or greater chance of flooding in any given year" (i.e., that area that would be inundated by a 100-year flood). Federal agencies, including the FAA, are directed to "reduce the risk

of flood loss, to minimize the impact of floods on human safety, health and welfare, and to restore and preserve the natural and beneficial values served by floodplains.”

Pima County participates in the National Flood Insurance Program (NFIP) and has adopted appropriate floodplain management regulations for issuing development permits within the floodplain areas identified on the current Flood Insurance Rate Maps (FIRM).

The primary concern of the NFIP is to regulate development within the 100-year floodplain as delineated on the community’s FIRM. Pima County’s Department of Transportation and Flood Control District provided copies of the FIRM for the Avra Valley Airport area. According to Map Number 04019C0990 K, dated February 8, 1999, the Airport lies within a Zone AO Flood Hazard Area. Zone AO is defined as having flood depths of 1 to 3 feet (usually sheet flow on sloping terrain). Future Airport improvements, therefore, should be designed and constructed in accordance with County standards for construction in the 100-year floodplain. Additionally, these improvements will result in some direct impacts to floodplains as they now exist. A County permit is, therefore, required. Due to the nature of the proposed improvements, and the loss of flood storage which can be accommodated elsewhere on site, an increase in flood risk, however, is not expected.

## **FARMLAND**

The following comments were received from the United States Department of Agriculture, in their letter dated January 25, 1999: (1) “The Avra Valley Airport plan, if implemented as planned, is exempt from the requirements of the Farmland Protection Policy Act (FPPA) - as revised in 1994, that excludes land which is already in or is committed to urban development, currently used as water storage, or land that is not prime or unique farmland.”, and (2) “We do not see any immediate concerns or impacts that would directly affect wetland areas associated with agricultural activities.”

## **ENERGY SUPPLY AND NATURAL RESOURCES**

Energy requirements generally fall into two categories: (1) those which relate to changed demands for stationary facilities and (2) those which involve the movement of air and ground vehicles. According to *FAA Order 5050.4A*, an impact arises where a project will have a measurable effect on local energy supplies or would require the use of an unusual material or one in short supply. Increased consumption of fuel by aircraft is examined where ground movement or runup times are increased substantially without offsetting efficiencies in operational procedures or if the faction includes a change in flight patterns. Ground vehicles fuel consumption is examined only if the action would add appreciably to access time or if there would be a substantial change in movement patterns for on-airport service or other vehicles.

There are no existing energy production or supply facilities that would be directly affected by the proposed improvement program and no impacts are anticipated on the development of energy resources. An increase in energy demand is expected to occur as a result of the development of the identified Aviation Related Development parcels, expansion of the existing T-Hangar development

area, general aviation terminal facility, future industrial park, the general aviation related facilities proposed for the area south of the current Avra Valley Road alignment, and the proposed Avra Valley Realignment. Other identified improvements are expected to result in only slight increases in energy demand.

Additional electricity will be needed for the proposed parallel runway, extensions of existing runways, taxiway lighting, navigation aid lighting, terminal facility, hangars, street lights, and parking areas. Furthermore, expenditures of manpower, fuel, electricity, chemicals, water, and other forms of energy will be necessary to construct, maintain, and operate the proposed improvements.

According to *FAA Order 5050.4A*, "for most airport actions, changes in energy or other natural resource consumption will not result in significant impacts" unless there is a problem with demands exceeding supplies, or changes in aircraft or ground vehicles use which would greatly increase fuel consumption, or the proposal requires substantial use of natural resources in short supply. None of this is expected to be applicable to the improvements identified for Avra Valley Airport.

## **LIGHT EMISSIONS**

The proposed lighting improvements for the 20-year development plan include the installation of additional Medium Intensity Runway Lighting (MIRL) on the extensions for Runways 12L-30R and 3-21, new Medium Intensity Taxiway Lighting (MITL) on both the existing and proposed taxiways, MALSR approach lighting system for Runway 12L, replacement of VASI-2s with PAPI-2s on Runway 3-21, and the installation of PAPI-2s, MIRLs, and REILs on the proposed parallel runway. It is further anticipated that outdoor lighting would be installed within the automobile parking areas, aircraft parking apron and surrounding all terminal and FBO buildings and hangars where lighting is currently unavailable.

Because of the distance from the airfield to light-sensitive land uses, impacts associated with any new light emissions are not expected to be significant.

## **SOLID WASTE**

Operational and construction activities of an airport do contribute to the generation of solid waste, but are generally not considered to be significant contributors. The presence of sanitary landfills and transfer stations in the vicinity of airports can be a concern because they can attract scavenger birds, which can increase the potential for bird strikes. *FAA Advisory Circular 150/5200-33* considers putrescible waste landfills to be incompatible with aviation activity if located within 10,000 feet of an airport serving jet aircraft, or within five miles of runway approaches.

According to the Arizona Department of Environmental Quality Solid Waste Section Directories of Active, Inactive, and Closed Solid Waste Facilities, dated May, 1998, the closest active facility is the Pima County - Tangerine Road Municipal Solid Waste Landfill. The landfill is located 1.5 miles west of Interstate 10 on Tangerine Road, which places the facility approximately 11,250 feet (2.1 miles) northeast of Avra Valley Airport. No other proposed, inactive or active landfills or transfer

stations were identified within 3,000 meters or 9,843 feet of any of the two existing runways at Avra Valley Airport.

The majority of projects identified for Avra Valley Airport will not result in any appreciable increases in the amount of solid waste or changes in the type of solid waste generated at the facility. Some of the proposed uses, however, may have an appreciable effect on the quantity and type of solid waste: the terminal facility, and the aviation related development parcels. Continued coordination with Pima County and the Town of Marana will be necessary throughout the life of the master plan development concept.

## CONSTRUCTION IMPACTS

Construction activities have the potential to create temporary environmental impacts at an airport. These impacts primarily relate to noise resulting from heavy construction equipment, fugitive dust emissions resulting from construction activities, and potential impacts on water quality from runoff and soil erosion from exposed surfaces.

A temporary increase in particulate emissions and fugitive dust may result from construction activities. The use of temporary dirt access roads would increase the generation of particulates. Dust control measures, such as watering exposed soil areas, will need to be implemented to minimize this localized impact.

Any necessary clearing and grubbing of construction areas should be conducted in sections or sequenced to minimize the amount of exposed soil at any one time. All vehicular traffic should be restricted to the construction site and established roadways.

The provisions contained in *FAA Advisory Circular 150/5370-10, Standards for Specifying Construction of Airports, Temporary Air and Water Pollution, Soil Erosion, and Siltation Control* will be incorporated into all project specifications. During construction, temporary dikes, basins, and ditches should be utilized to control soil erosion and sedimentation and prevent degradation of off-airport surface water quality. After construction is complete, slopes and denuded areas should be reseeded to aid in the vegetation process.

Construction impacts are not normally considered to result in a significant, unmitigatable impact. In general, the use of best management practices address the air and water quality concerns. Noise is not expected to be an issue at Avra Valley Airport because of the distance between the proposed development areas and residential uses.

## CONCLUSION

Based on the review of correspondence provided by various federal, state and local agencies, potential environmental issues and considerations anticipated as a result of the development and operation of Avra Valley Airport have been identified. These issues and considerations include the following:

- Air Quality - Status of nearby nonattainment areas should be monitored.
- Historical/Cultural Resources - Phase I Cultural Resources Assessment should be conducted by qualified specialist(s) prior to any ground-disturbing activity, including those areas previously surveyed. In addition, a Phase I Historical Resources Assessment should be prepared prior to any demolition or relocation of potentially World War II era structures.
- Wetlands - Request a jurisdictional delineation from the U.S. Army Corps of Engineers for the Airport development area.
- Floodplains - Ongoing coordination with Pima County Department of Transportation and Flood Control District.

As a result of the NEPA process, mitigation measures may be recommended to limit the potential impacts related to a number of these resources. Please note that as more specific information is gathered through a formal EA process, additional issues may arise.

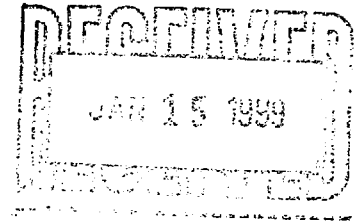
*Agency Response Letters*

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"Managing and conserving natural, cultural, and recreational resources"

January 13, 1999

Bill Hetland, Planner  
Coffman Associates, Airport Consultants  
11022 N. 28th Drive, Suite 240  
Phoenix, Arizona 85029



RE: Marana; Avra Valley Airport, Environmental Evaluation for Master Plan; Pima County and FAA

Dear Mr. Hetland,

Thank you for consulting our office regarding the preparation of an environmental evaluation for inclusion in the master plan. Your letter and project summary described the proposed airfield improvements and requested information regarding known environmental resources and sensitivities. Our records indicate that much of the existing airport property has been surveyed (two different survey areas are identified on our maps); several archaeological sites were located. I recommend that you contact Linda Mayro, Pima County Cultural Resources Manager for additional information.

Your description of proposed improvements indicates that numerous construction projects are contemplated and that the various alternative call for acquisition of up to 430 acres of property surrounding the existing facility. We recommend that any undisturbed area within that facility and all property proposed for acquisition be surveyed by a qualified cultural resource specialist in order to locate and evaluate any cultural resources that might be affected by the proposed improvements, as a part of the master planning process. By so doing, the planning process can incorporate the appropriate treatment of any such resources under state and federal preservation laws in the evaluation of alternatives. As you know, many existing airfields in Arizona have incorporated historic hangars and other structures, often including the airfields themselves, which are associated with aviation history and military aviation during World War II. Any such structures should be included in the evaluation of cultural resources.

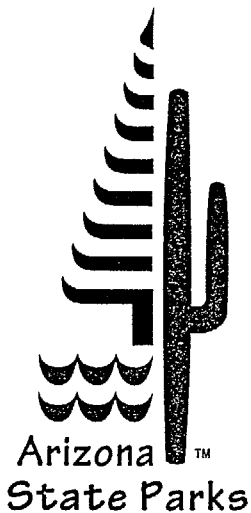
Your cover letter indicates your desire to "...identify environmental issues that should be considered upon implementation of the Airport Master Plan." The value of the master plan will be substantially increased if any cultural resource issues are identified at this early stage, rather than during implementation.

Your continued cooperation with this office in considering the impacts of this project on cultural resources is greatly appreciated. If you have any questions, please contact me at (602) 542-7137 or 542-4009.

Sincerely,

Carol Heathington  
Compliance Specialist  
State Historic Preservation Office

B-19



Jane Dee Hull  
Governor

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602-542-4188

Letter to B. Hetland, 1/13/99  
Page 2

cc: Linda Mayro, Pima County Cultural Resources Manager  
David Kessler, Environmental Protection Specialist, FAA



United States Department of the Interior  
Fish and Wildlife Service

Arizona Ecological Services Field Office  
2321 W. Royal Palm Road, Suite 103  
Phoenix, Arizona 85021-4951  
(602) 640-2720 Fax (602) 640-2730



In Reply Refer To:  
AESO/SE  
2-21-86-I-088  
[CCN 990107]

December 23, 1998

Mr. Bill Hetland, Planner  
Coffman Associates  
11022 North 28th Drive, Suite 240  
Phoenix, Arizona 85029

RE: Avra Valley Airport Master Plan, Marana

Dear Mr. Hetland:

This letter responds to your December 11, 1998, request for an inventory of threatened or endangered species, or those that are proposed to be listed as such under the Endangered Species Act of 1973, as amended (Act), which may potentially occur in your project area (Pima County). The enclosed list may include candidate species as well. We hope the enclosed county list of species will be helpful. In future communications regarding this project, please refer to consultation number 2-21-86-I-088.

Please be aware that you may also access limited county species lists for Arizona on our internet web site at the following:

<http://ifw2es.fws.gov/endspcs/lists/>

The enclosed list of the endangered, threatened, proposed, and candidate species includes all those potentially occurring anywhere in the county, or counties, where your project occurs. Please note that your project area may not necessarily include all or any of these species. The information provided includes general descriptions, habitat requirements, and other information for each species on the list. Also on the enclosed list is the Code of Federal Regulations (CFR) citation for each listed or proposed species. Additional information can be found in the CFR and is available at most public libraries. This information should assist you in determining which species may or may not occur within your project area. Site-specific surveys could also be helpful and may be needed to verify the presence or absence of a species or its habitat as required for the evaluation of proposed project-related impacts.

Endangered and threatened species are protected by Federal law and must be considered prior to project development. If the action agency determines that listed species or critical habitat may be adversely affected by a federally funded, permitted, or authorized activity, the action agency must request formal consultation with the Service. If the action agency determines that the planned action may jeopardize a proposed species or destroy or adversely modify proposed

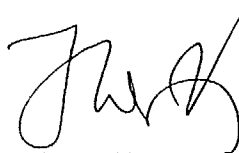
critical habitat, the action agency must enter into a section 7 conference with the Service. Candidate species are those which are being considered for addition to the list of threatened or endangered species. Candidate species are those for which there is sufficient information to support a proposal for listing. Although candidate species have no legal protection under the Act, we recommend that they be considered in the planning process in the event that they become listed or proposed for listing prior to project completion.

If any proposed action occurs in or near areas with trees and shrubs growing along watercourses, known as riparian habitat, the Service recommends the protection of these areas. Riparian areas are critical to biological community diversity and provide linear corridors important to migratory species. In addition, if the project will result in the deposition of dredged or fill materials into waterways or excavation in waterways, we recommend you contact the Army Corps of Engineers which regulates these activities under Section 404 of the Clean Water Act.

The State of Arizona protects some plant and animal species not protected by Federal law. We recommend you contact the Arizona Game and Fish Department and the Arizona Department of Agriculture for State-listed or sensitive species in your project area.

The Service appreciates your efforts to identify and avoid impacts to listed and sensitive species in your project area. If we may be of further assistance, please feel free to contact Tom Gatz.

Sincerely,

A handwritten signature in dark ink, appearing to read 'J. Harlow', is written over the printed name.

David L. Harlow  
Field Supervisor

Enclosure

cc: Director, Arizona Game and Fish Department, Phoenix, AZ

10/8/98

LISTED TOTAL= 18

NAME: HUACHUCA WATER UMBEL

*LILAEOPSIS SCHAFFNERIANA ssp RECURVA*

STATUS: ENDANGERED

CRITICAL HAB: No RECOVERY PLAN: No CFR: 62 FR 665, 01-06-97

DESCRIPTION: HERBACEOUS, SEMI-AQUATIC PERENNIAL IN THE PARSLEY FAMILY  
(UMBELLIFERAE) WITH SLENDER ERECT, HOLLOW, LEAVES THAT GROW  
FROM THE NODES OF CREEPING RHIZOMES. FLOWER: 3 TO 10  
FLOWERED UMBELS ARISE FROM ROOT NODES.

ELEVATION

RANGE: 3500-6500 FT.

COUNTIES: PIMA, SANTA CRUZ, COCHISE

HABITAT: CIENEGAS, PERENNIAL LOW GRADIENT STREAMS, WETLANDS

AND IN ADJACENT SONORA, MEXICO, WEST OF THE CONTINENTAL DIVIDE. POPULATIONS ALSO ON FORT  
HUACHUCA MILITARY RESERVATION.

NAME: KEARNEY'S BLUE STAR

*AMSONIA KEARNEYANA*

STATUS: ENDANGERED

CRITICAL HAB: No RECOVERY PLAN: Yes CFR: 54 FR 2131, 01-19-1989

DESCRIPTION: A HERBACEOUS PERENNIAL IN THE DOGBANE FAMILY (APOCYNACEAE).  
THICKENED WOODY ROOT AND MANY PUBESCENT (HAIRY) STEMS THAT  
RARELY BRANCH. FLOWERS: WHITE TERMINAL INFLORESCENCE IN  
APRIL & MAY.

ELEVATION

RANGE: 3600-3800 FT.

COUNTIES: PIMA

HABITAT: WEST-FACING DRAINAGES IN THE BABOQUIVARI MOUNTAINS.

PLANTS GROW IN STABLE, PARTIALLY SHADED, COARSE ALLUVIUM ALONG A DRY WASH IN THE BABOQUIVARI  
MOUNTAINS. RANGE IS EXTREMELY LIMITED. PROTECTED BY ARIZONA NATIVE PLANT LAW.

NAME: NICHOL'S TURK'S HEAD CACTUS

*ECHINOCACTUS HORIZONTHALONIUS VAR NICHOLII*

STATUS: ENDANGERED

CRITICAL HAB: No RECOVERY PLAN: No CFR: 44 FR 61927, 10-26-1979

DESCRIPTION: BLUE-GREEN TO YELLOWISH-GREEN, COLUMNAR, 18 INCHES TALL, 8  
INCHES IN DIAMETER. SPINE CLUSTERS HAVE 5 RADIAL & 3 CENTRAL  
SPINES; ONE DOWNWARD SHORT; 2 SPINES UPWARD AND RED OR  
BASALLY GRAY. FLOWER: PINK FRUIT: WOOLLY WHITE

ELEVATION

RANGE: 2400-4100 FT.

COUNTIES: PINAL, PIMA, YUMA

HABITAT: SONORAN DESERTSCRUB

FOUND IN UNSHADED MICROSITES IN SONORAN DESERTSCRUB ON DISSECTED ALLUVIAL FANS AT THE FOOT OF  
LIMESTONE MOUNTAINS AND ON INCLINED TERRACES AND SADDLES ON LIMESTONE MOUNTAINSIDES.

10/8/98

## NAME: PIMA PINEAPPLE CACTUS

*CORYPHANTHA SCHEERI ROBUSTISPINA*

STATUS: ENDANGERED

CRITICAL HAB: No RECOVERY PLAN: No CFR: 57 FR 14374, 04-20-1992

DESCRIPTION: HEMISPHERICAL STEMS 4-7 INCHES TALL 3-4 INCHES DIAMETER.  
CENTRAL SPINE 1 INCH LONG STRAW COLORED HOOKED  
SURROUNDED BY 6-15 RADIAL SPINES. FLOWER: YELLOW SALMON OR  
RARELY WHITE NARROW FLORAL TUBE.

ELEVATION  
RANGE: 2300-5000 FT.

COUNTIES: PIMA, SANTA CRUZ

HABITAT: SONORAN DESERT SCRUB OR SEMI-DESERT GRASSLAND COMMUNITIES

OCCURS IN ALLUVIAL VALLEYS OR ON HILLSIDES IN ROCKY TO SANDY OR SILTY SOILS. THIS SPECIE CAN BE  
CONFUSED WITH JUVENILE BARREL CACTUS (FEROCACTUS). HOWEVER, THE SPINES OF THE LATER ARE  
FLATTENED, IN CONTRAST WITH THE ROUND CROSS-SECTION OF THE CORYPHANTHA SPINES. ALSO THE  
AREOLES (SPINE CLUSTERS) OF CORYPHANTHA ARE ON TUBERCLES (BUMPS), WHILE THE AREOLES OF  
FEROCACTUS ARE ON RIDGES (RIBS).

## NAME: JAGUAR, UNITED STATES POPULATION

*PANTHERA ONCA*

STATUS: ENDANGERED

CRITICAL HAB: No RECOVERY PLAN: No CFR: 62 FR 39147, 7-22-97

DESCRIPTION: MUSCULAR CAT WITH RELATIVELY SHORT, MASSIVE LIMBS AND A DEEP-  
CHESTED BODY. CINNAMON-BUFF IN COLOR WITH BLACK SPOTS.

ELEVATION  
RANGE: <8000 FT.

COUNTIES: COCHISE, PIMA, SANTA CRUZ

HABITAT: IN ARIZONA, RANGED WIDELY THROUGHOUT A VARIETY OF HABITATS FROM SONORAN DESERT TO  
CONIFER FORESTS

MOST RECORDS ARE FROM THE MADREAN EVERGREEN-WOODLAND, SHRUB-INVADDED SEMI-DESERT GRASSLAND,  
AND ALONG RIVERS. HISTORIC RANGE IS CONSIDERED TO HAVE EXTENDED BEYOND THE COUNTIES LISTED  
ABOVE. REPORTS OF INDIVIDUALS IN THE SOUTHERN PART OF THE STATE CONTINUE TO BE RECEIVED. THE  
MOST RECENT RECORDS OF A JAGUAR IN THE U.S. ARE FROM THE NEW MEXICO/ARIZONA BORDER AREA AND IN  
SOUTHCENTRAL ARIZONA, BOTH IN 1996, AND CONFIRMED THROUGH PHOTOGRAPHS. UNCONFIRMED SIGHTINGS  
AND TRACKS CONTINUE TO BE REPORTED.

## NAME: JAGUARUNDI

*FELIS YAGOUAROUNDI TOLTECA*

STATUS: ENDANGERED

CRITICAL HAB: No RECOVERY PLAN: No CFR: 41 FR 24064; 06-14-76

DESCRIPTION: SMALL CAT WITH SHORT LEGS; SLENDER, ELONGATE BODY; AND LONG  
TAIL. HEAD SMALL & FLATTENED WITH SHORT ROUNDED EARS.  
REDDISH-YELLOW OR BLACKISH TO BROWN-GRAY IN COLOR AND  
WITHOUT SPOTS.

ELEVATION  
RANGE: 3500-6000 FT.

COUNTIES: SANTA CRUZ, PIMA, COCHISE

HABITAT: CAN BE FOUND IN A VARIETY OF HABITATS (SEE BELOW)

SEMI-ARID THORNY FORESTS, DECIDUOUS FORESTS, HUMID PRE-MONTANE FORESTS, UPLAND DRY SAVANNAHS,  
SWAMPY GRASSLANDS, RIPARIAN AREAS, AND DENSE BRUSH. UNCONFIRMED REPORTS OF INDIVIDUALS IN THE  
SOUTHERN PART OF THE STATE CONTINUE TO BE RECEIVED. NO SPECIMENS HAVE BEEN COLLECTED IN  
ARIZONA.

LISTED, PROPOSED, AND CANDIDATE SPECIES FOR THE FOLLOWING COUNTY:

Pima

10/8/98

NAME: LESSER LONG-NOSED BAT

*LEPTONYCTERIS CURASOAE YERBABUENAE*

STATUS: ENDANGERED

CRITICAL HAB: No RECOVERY PLAN: Yes CFR: 53 FR 38456, 09-30-88

DESCRIPTION: ELONGATED MUZZLE, SMALL LEAF NOSE, AND LONG TONGUE.

YELLOWISH BROWN OR GRAY ABOVE AND CINNAMON BROWN BELOW.

TAIL MINUTE AND APPEARS TO BE LACKING. EASILY DISTURBED.

ELEVATION

RANGE: <6000 FT.

COUNTIES: COCHISE, PIMA, SANTA CRUZ, GRAHAM, PINAL, MARICOPA

HABITAT: DESERT SCRUB HABITAT WITH AGAVE AND COLUMNAR CACTI PRESENT AS FOOD PLANTS

DAY ROOSTS IN CAVES AND ABANDONED TUNNELS. FORAGES AT NIGHT ON NECTAR, POLLEN, AND FRUIT OF PANICULATE AGAVES AND COLUMNAR CACTI. THIS SPECIES IS MIGRATORY AND IS PRESENT IN ARIZONA, USUALLY FROM APRIL TO SEPTMBER AND SOUTH OF THE BORDER THE REMAINDER OF THE YEAR.

NAME: MEXICAN GRAY WOLF

*CANIS LUPUS BAILEYI*

STATUS: ENDANGERED

CRITICAL HAB: No RECOVERY PLAN: Yes CFR: 32 FR 4001, 03-11-67; 43

DESCRIPTION: LARGE DOG-LIKE CARNIVORE WITH VARYING COLOR, BUT USUALLY A

SHADE OF GRAY. DISTINCT WHITE LIP LINE AROUND MOUTH. WEIGH 60-90 POUNDS.

FR 1912, 03-09-78

ELEVATION

RANGE: 4,000-12,000FT.

COUNTIES: APACHE, COCHISE, GREENLEE, PIMA, SANTA CRUZ

HABITAT: CHAPPARAL, WOODLAND, AND FORESTED AREAS. MAY CROSS DESERT AREAS.

HISTORIC RANGE IS CONSIDERED TO BE LARGER THAN THE COUNTIES LISTED ABOVE. UNCONFIRMED REPORTS OF INDIVIDUALS IN THE SOUTHERN PART OF THE STATE (COCHISE, PIMA, SANTA CRUZ) CONTINUE TO BE RECEIVED. INDIVIDUALS MAY STILL PERSIST IN MEXICO. EXPERIMENTAL NONESSENTIAL POPULATION INTRODUCED IN THE BLUE PRIMITIVE AREA OF GREENLEE AND APACHE COUNTIES.

NAME: OCELOT

*FELIS PARDALIS*

STATUS: ENDANGERED

CRITICAL HAB: No RECOVERY PLAN: Yes CFR: 47 FR 31670; 07-21-82

DESCRIPTION: MEDIUM-SIZED SPOTTED CAT WHOSE TAIL IS ABOUT 1/2 THE LENGTH

OF HEAD AND BODY. YELLOWISH WITH BLACK STREAKS AND STRIPES

RUNNING FROM FRONT TO BACK. TAIL IS SPOTTED AND FACE IS LESS

HEAVILY STREAKED THAN THE BACK AND SIDES.

ELEVATION

RANGE: <8000 FT.

COUNTIES: SANTA CRUZ, PIMA, COCHISE

HABITAT: HUMID TROPICAL & SUB-TROPICAL FORESTS, SAVANNAHS, AND SEMI-ARID THORNSCRUB.

MAY PERSIST IN PARTLY-CLEARED FORESTS, SECOND-GROWTH WOODLAND, AND ABANDONED CULTIVATION REVERTED TO BRUSH. UNIVERSAL COMPONENT IS PRESENCE OF DENSE COVER. UNCONFIRMED REPORTS OF INDIVIDUALS IN THE SOUTHERN PART OF THE STATE CONTINUE TO BE RECEIVED.

LISTED, PROPOSED, AND CANDIDATE SPECIES FOR THE FOLLOWING COUNTY:

Pima

10/8/98

NAME: SONORAN PRONGHORN

*ANTILOCAPRA AMERICANA SONORIENSIS*

STATUS: ENDANGERED

CRITICAL HAB: No RECOVERY PLAN: Yes CFR: 32 FR 4001, 03-11-67

DESCRIPTION: BUFF ON BACK AND WHITE BELOW, HOOFED WITH SLIGHTLY CURVED  
BLACK HORNS HAVING A SINGLE PRONG. SMALLEST AND PALEST OF  
THE PRONGHORN SUBSPECIES.

ELEVATION

RANGE: 2000-4000 FT.

COUNTIES: PIMA, YUMA, MARICOPA

HABITAT: BROAD, INTERMOUNTAIN ALLUVIAL VALLEYS WITH CREOSOTE-BURSAGE & PALO VERDE-MIXED CACTI  
ASSOCIATIONS

TYPICALLY, BAJADAS ARE USED AS FAWNING AREAS AND SANDY DUNE AREAS PROVIDE FOOD SEASONALLY.  
HISTORIC RANGE WAS PROBABLY LARGER THAN EXISTS TODAY. THIS SUBSPECIES ALSO OCCURS IN MEXICO.

NAME: DESERT PUPFISH

*CYPRINODON MACULARIUS*

STATUS: ENDANGERED

CRITICAL HAB: Yes RECOVERY PLAN: Yes CFR: 51 FR 10842, 03-31-1986

DESCRIPTION: SMALL (2 INCHES) SMOOTHLY ROUNDED BODY SHAPE WITH NARROW  
VERTICAL BARS ON THE SIDES. BREEDING MALES BLUE ON HEAD AND  
SIDES WITH YELLOW ON TAIL. FEMALES & JUVENILES TAN TO OLIVE  
COLORED BACK AND SILVERY SIDES.

ELEVATION

RANGE: <5000 FT.

COUNTIES: LA PAZ, PIMA, GRAHAM, MARICOPA, PINAL, YAVAPAI, SANTA CRUZ

HABITAT: SHALLOW SPRINGS, SMALL STREAMS, AND MARSHES. TOLERATES SALINE & WARM WATER

CRITICAL HABITAT INCLUDES QUITOBAQUITO SPRING, PIMA COUNTY, PORTIONS OF SAN FELIPE CREEK, CARRIZO  
WASH, AND FISH CREEK WASH, IMPERIAL COUNTY, CALIFORNIA. TWO SUBSPECIES ARE RECOGNIZED: DESERT  
PUPFISH (*C. m. macularis*) AND QUITOBAQUITO PUPFISH (*C. m. eremus*).

NAME: GILA TOPMINNOW

*POECILIOPSIS OCCIDENTALIS OCCIDENTALIS*

STATUS: ENDANGERED

CRITICAL HAB: No RECOVERY PLAN: Yes CFR: 32 FR 4001, 03-11-1967

DESCRIPTION: SMALL (2 INCHES), GUPPY-LIKE, LIVE BEARING, LACKS DARK SPOTS ON  
ITS FINS. BREEDING MALES ARE JET BLACK WITH YELLOW FINS.

ELEVATION

RANGE: <4500 FT.

COUNTIES: GILA, PINAL, GRAHAM, YAVAPAI, SANTA CRUZ, PIMA, MARICOPA, LA PAZ

HABITAT: SMALL STREAMS, SPRINGS, AND CIENEGAS VEGETATED SHALLOWS

SPECIES HISTORICALLY OCCURRED IN BACKWATERS OF LARGE RIVERS BUT IS CURRENTLY ISOLATED TO SMALL  
STREAMS AND SPRINGS

LISTED, PROPOSED, AND CANDIDATE SPECIES FOR THE FOLLOWING COUNTY:

Pima

10/8/98

NAME: AMERICAN PEREGRINE FALCON

*FALCO PEREGRINUS ANATUM*

STATUS: ENDANGERED

CRITICAL HAB: No RECOVERY PLAN: Yes CFR: 35 FR 16047, 10-13-70; 35

DESCRIPTION: A RECLUSIVE, CROW-SIZED FALCON SLATY BLUE ABOVE WHITISH  
BELOW WITH FINE DARK BARRING. THE HEAD IS BLACK AND APPEARS  
TO BE MASKED OR HELMETED. WINGS LONG AND POINTED. LOUD  
WAILING CALLS ARE GIVEN DURING BREEDING PERIOD.

FR 8495, 06-02-70

ELEVATION

RANGE: 3500-9000 FT.

COUNTIES: MOHAVE COCONINO NAVAJO APACHE SANTA CRUZ MARICOPA COCHISE YAVAPAI GILA PINAL PIMA  
GREENLEE GRAHAM

HABITAT: CLIFFS AND STEEP TERRAIN USUALLY NEAR WATER OR WOODLANDS WITH ABUNDANT PREY

THIS IS A WIDE-RANGING MIGRATORY BIRD THAT USES A VARIETY OF HABITATS. BREEDING BIRDS ARE YEAR-  
ROUND RESIDENTS. OTHER BIRDS WINTER AND MIGRATE THROUGH ARIZONA. SPECIES IS ENDANGERED FROM  
REPRODUCTIVE FAILURE FROM PESTICIDES.

NAME: BALD EAGLE

*HALIAEETUS LEUCOCEPHALUS*

STATUS: THREATENED

CRITICAL HAB: No RECOVERY PLAN: Yes CFR: 60 FR 35999, 07-12-95

DESCRIPTION: LARGE, ADULTS HAVE WHITE HEAD AND TAIL. HEIGHT 28 - 38";  
WINGSPAN 66 - 96". 1-4 YRS DARK WITH VARYING DEGREES OF  
MOTTLED BROWN PLUMAGE. FEET BARE OF FEATHERS.

ELEVATION

RANGE: VARIES FT.

COUNTIES: YUMA, LA PAZ, MOHAVE, YAVAPAI, MARICOPA, PINAL, COCONINO, NAVAJO, APACHE, SANTA CRUZ, PIMA,  
GILA, GRAHAM

HABITAT: LARGE TREES OR CLIFFS NEAR WATER (RESERVOIRS, RIVERS AND STREAMS) WITH ABUNDANT PREY

SOME BIRDS ARE NESTING RESIDENTS WHILE A LARGER NUMBER WINTERS ALONG RIVERS AND RESERVOIRS.  
AN ESTIMATED 200 TO 300 BIRDS WINTER IN ARIZONA. ONCE ENDANGERED (32 FR 4001, 03-11-1967; 43 FR 6233, 02-  
14-78) BECAUSE OF REPRODUCTIVE FAILURES FROM PESTICIDE POISONING AND LOSS OF HABITAT, THIS  
SPECIES WAS DOWN LISTED TO THREATENED ON AUGUST 11, 1995. ILLEGAL SHOOTING, DISTURBANCE, LOSS OF  
HABITAT CONTINUES TO BE A PROBLEM.

NAME: CACTUS FERRUGINOUS PYGMY-OWL

*GLAUCIDIDIUM BRASILIANUM CACTORUM*

STATUS: ENDANGERED

CRITICAL HAB: No RECOVERY PLAN: No CFR: 62 FR 10730, 3-10-97

DESCRIPTION: SMALL (APPROX. 7"), DIURNAL OWL REDDISH BROWN OVERALL WITH  
CREAM-COLORED BELLY STREAKED WITH REDDISH BROWN. SOME  
INDIVIDUALS ARE GRAYISH BROWN

ELEVATION

RANGE: <4000 FT.

COUNTIES: MARICOPA, YUMA, SANTA CRUZ, GRAHAM, GREENLEE, PIMA, PINAL, GILA

HABITAT: MATURE COTTONWOOD/WILLOW, MESQUITE BOSQUES, AND SONORAN DESERTSCRUB

RANGE LIMIT IN ARIZONA IS FROM NEW RIVER (NORTH) TO GILA BOX (EAST) TO CABEZA PRIETA MOUNTAINS  
(WEST). ONLY A FEW DOCUMENTED SITES WHERE THIS SPECIES PERSISTS ARE KNOWN, ADDITIONAL SURVEYS  
ARE NEEDED. LISTING EFFECTIVE APRIL 9, 1997.

LISTED, PROPOSED, AND CANDIDATE SPECIES FOR THE FOLLOWING COUNTY:

Pima

10/8/98

NAME: MASKED BOBWHITE

*COLINUS VIRGINIANUS RIDGEWAYI*

STATUS: ENDANGERED CRITICAL HAB: No RECOVERY PLAN: Yes CFR: 35 FR 4001, 03-11-1967; 35  
DESCRIPTION: MALES BRICK-RED BREAST AND BLACK HEAD AND THROAT. FEMALES FR 8495, 06-02-70  
ARE GENERALLY NONDESCRIPT BUT RESEMBLE OTHER RACES SUCH  
AS THE TEXAS BOBWHITE.

ELEVATION  
RANGE: 1000-4000 FT.

COUNTIES: PIMA

HABITAT: DESERT GRASSLANDS WITH DIVERSITY OF DENSE NATIVE GRASSES, FORBS AND BRUSH

SPECIES IS CLOSELY ASSOCIATED WITH ACACIA ANGUSTISSIMA. FORMERLY OCCURRED IN ALTAR AND SANTA CRUZ VALLEYS, AS WELL AS SONORA, MEXICO. PRESENTLY ONLY KNOWN FROM REINTRODUCED POPULATION ON BUENOS AIRES.

NAME: MEXICAN SPOTTED OWL

*STRIX OCCIDENTALIS LUCIDA*

STATUS: THREATENED CRITICAL HAB: No RECOVERY PLAN: Yes CFR: 56 FR 14678, 04-11-91  
DESCRIPTION: MEDIUM SIZED WITH DARK EYES AND NO EAR TUFTS. BROWNISH AND  
HEAVILY SPOTTED WITH WHITE OR BEIGE.

ELEVATION  
RANGE: 4100-9000 FT.

COUNTIES: MOHAVE, COCONINO, NAVAJO, APACHE, YAVAPAI, GRAHAM, GREENLEE, COCHISE, SANTA CRUZ, PIMA,  
PINAL, GILA, MARICOPA

HABITAT: NESTS IN CANYONS AND DENSE FORESTS WITH MULTI-LAYERED FOLIAGE STRUCTURE

GENERALLY NESTS IN OLDER FORESTS OF MIXED CONIFER OR PONDEROSA PINE/GAMBEL OAK TYPE, IN CANYONS, AND USE VARIETY OF HABITATS FOR FORAGING. SITES WITH COOL MICROCLIMATES APPEAR TO BE OF IMPORTANCE OR ARE PREFERRED.

NAME: SOUTHWESTERN WILLOW FLYCATCHER

*EMPIDONAX TRAILLII EXTIMUS*

STATUS: ENDANGERED CRITICAL HAB: Yes RECOVERY PLAN: No CFR: 60 FR 10694, 02-27-95  
DESCRIPTION: SMALL PASSERINE (ABOUT 6") GRAYISH-GREEN BACK AND WINGS,  
WHITISH THROAT, LIGHT OLIVE-GRAY BREAST AND PALE YELLOWISH  
BELLY. TWO WINGBARS VISIBLE. EYE-RING FAINT OR ABSENT.

ELEVATION  
RANGE: <8500 FT.

COUNTIES: YAVAPAI, GILA, MARICOPA, MOHAVE, COCONINO, NAVAJO, APACHE, PINAL, LA PAZ, GREENLEE, GRAHAM,  
YUMA, PIMA, COCHISE, SANTA CRUZ

HABITAT: COTTONWOOD/WILLOW & TAMARISK VEGETATION COMMUNITIES ALONG RIVERS & STREAMS

MIGRATORY RIPARIAN OBLIGATE SPECIES THAT OCCUPIES BREEDING HABITAT FROM LATE APRIL TO SEPTEMBER. DISTRIBUTION WITHIN ITS RANGE IS RESTRICTED TO RIPARIAN CORRIDORS. DIFFICULT TO DISTINGUISH FROM OTHER MEMBERS OF THE EMPIDONAX COMPLEX BY SIGHT ALONE. TRAINING SEMINAR REQUIRED FOR THOSE CONDUCTING FLYCATCHER SURVEYS. CRITICAL HABITAT ON PORTIONS OF THE 100-YEAR FLOODPLAIN ON SAN PEDRO AND VERDE RIVERS; WET BEAVER AND WEST CLEAR CREEKS, INCLUDING TAVASCI MARSH AND ISTER FLAT; THE COLORADO RIVER, THE LITTLE COLORADO RIVER, AND THE WEST, EAST, AND SOUTH FORKS OF THE LITTLE COLORADO RIVER, REFERENCE 60 CFR:62 FR 39129, 7/22/97.

LISTED, PROPOSED, AND CANDIDATE SPECIES FOR THE FOLLOWING COUNTY:

Pima

10/8/98

CANDIDATE TOTAL= 5

NAME: ACUNA CACTUS

*ECHINOMASTUS ERECTOCENTRUS ACUNENSIS*

STATUS: CANDIDATE

CRITICAL HAB: No RECOVERY PLAN: No CFR:

DESCRIPTION: <12 INCHES HIGH SPINE CLUSTERS BORNE ON TUBERCLES, EACH WITH  
A GROOVE ON THE UPPER SURFACE. 2-3 CENTRAL SPINES AND 12  
RADIAL SPINES. FLOWERS PINK TO PURPLE

ELEVATION

RANGE: 1300-2000 FT.

COUNTIES: PINAL, PIMA

HABITAT: WELL DRAINED KNOLLS AND GRAVEL RIDGES IN SONORAN DESERT SCRUB

IMMATURE PLANTS DISTINCTLY DIFFERENT FROM MATURE PLANTS. THEY ARE DISC-SHAPED OR SPHERICAL AND  
HAVE NO CENTRAL SPINES UNTIL THEY ARE ABOUT 1.5 INCHES. RADIAL SPINES ARE DIRTY WHITE WITH MAROON  
TIPS.

NAME: GILA CHUB

*GILA INTERMEDIA*

STATUS: CANDIDATE

CRITICAL HAB: No RECOVERY PLAN: No CFR:

DESCRIPTION: DEEP COMPRESSED BODY, FLAT HEAD. DARK OLIVE-GRAY COLOR  
ABOVE, SILVER SIDES. ENDEMIC TO GILA RIVER BASIN.

ELEVATION

RANGE: 2000 - 3500 FT.

COUNTIES: SANTA CRUZ, GILA, GREENLEE, PIMA, COCHISE, GRAHAM, YAVAPAI

HABITAT: POOLS, SPRINGS, CIENEGAS, AND STREAMS

MULTIPLE PRIVATE LANDOWNERS, INCLUDING THE NATURE CONSERVANCY, THE AUDUBON SOCIETY, AND  
OTHERS. ALSO FT. HUACHUCA. SPECIES ALSO FOUND IN SONORA, MEXICO.

NAME: SONOYTA MUD TURTLE

*KINOSTERNON SONORIENSE LONGIFEMORALE*

STATUS: CANDIDATE

CRITICAL HAB: No RECOVERY PLAN: No CFR:

DESCRIPTION: PRIMARILY A POND TURTLE, PREFERS MUD OR SANDY BOTTOMS.  
BODY 3 1/2 TO 6 1/2. HEAD AND NECK MOTTLED WITH CONTRASTING  
LIGHT AND DARK MARKINGS. FOUND IN QUITOBAQUITO SPRINGS.

ELEVATION

RANGE: 1,100 FEET FT.

COUNTIES: PIMA

HABITAT: PONDS AND STREAMS.

SPECIES ALSO FOUND IN RIO SONOYTA, SONORA, MEXICO.

LISTED, PROPOSED, AND CANDIDATE SPECIES FOR THE FOLLOWING COUNTY:

Pima

10/8/98

NAME: MOUNTAIN PLOVER

*CHARADRIUS MONTANUS*

STATUS: CANDIDATE

CRITICAL HAB: No RECOVERY PLAN: No CFR:

DESCRIPTION: WADING BIRD; COMPACTLY BUILT; IN BREEDING SEASON WITH WHITE  
FOREHEAD AND LINE OVER THE EYE; CONTRASTING WITH DARK  
CROWN; NONDESCRIPT IN WINTER. VOICE IS LOW, VARIABLE WHISTLE.

ELEVATION  
RANGE: 0 FT.

COUNTIES: YUMA, SANTA CRUZ, PIMA, COCHISE

HABITAT: OPEN ARID PLAINS, SHORT-GRASS PRAIRIES, AND SCATTERED CACTUS.

NAME: CHIRICAHUA LEOPARD FROG

*RANA CHIRICAHUENSIS*

STATUS: CANDIDATE

CRITICAL HAB: No RECOVERY PLAN: No CFR:

DESCRIPTION: CREAM COLORED TUBERCLES (spots) ON A DARK BACKGROUND ON  
THE REAR OF THE THIGH, DORSOLATERAL FOLDS THAT ARE  
INTERRUPTED AND DEFLECTED MEDIALY, AND A CALL GIVEN OUT OF  
WATER DISTINGUISH THIS SPOTTED FROG FROM OTHER LEOPRD

ELEVATION  
RANGE: 3000-8300 FT.

COUNTIES: SANTA CRUZ, APACHE, GILA, PIMA, COCHISE, GREENLEE, GRAHAM, YAVAPAI, COCONINO, NAVAJO

HABITAT: STREAMS, RIVERS, BACKWATERS, PONDS, AND STOCK TANKS THAT ARE FREE FROM INTRODUCED FISH  
AND BULLFROGS

REQUIRE PERMANENT OR NEARLY PERMANENT WATER SOURCES. POPULATIONS NORTH OF THE GILA RIVER ARE  
THOUGHT TO BE CLOSELY-RELATED, BUT DISTINCT, UNDESCRIBED SPECIES.



THE STATE OF ARIZONA

## GAME & FISH DEPARTMENT

2221 West Greenway Road, Phoenix, Arizona 85023-4399 (602) 942-3000  
www.gf.state.az.us

Governor  
Jane Dee Hull

Commissioners:  
Chairman, Herb Guenther, Tacna  
Michael M. Golightly, Flagstaff  
William Berlat, Tucson  
M. Jean Hassell, Scottsdale  
Dennis D. Manning, Alpine

Director  
Duane L. Shroufe

Deputy Director  
Thomas W. Spalding

Tucson Office, 555 N. Greasewood Rd., Tucson, AZ 85745

January 7, 1999

Mr. Bill Hetland  
Coffman Associates  
11022 N. 28th Drive, Ste. 240  
Phoenix, Arizona 85029

Re: Avra Valley Airport Master Plan & Associated Development;  
T12S, R11E, Sections 3,4,9,10.

Dear Mr. Hetland:

The Arizona Game & Fish Department (Department) has reviewed the above-referenced project for its potential to adversely affect special status species, habitats of special concern, and other significant wildlife resources.

Those special status species listed in Attachment A are known to occur in the vicinity of the above-referenced project and are likely to occur on-site to the degree that the species' habitat requirements are present. This list is the result of a review of records in the Department's Heritage Data Management System<sup>1</sup> (HDMS).

Based on consideration of project-related information provided to the Department, there appears to be little likelihood that expansion of the Avra Valley Airport will adversely impact the State's wildlife resources. The Department does not anticipate the need to comment further on this project unless significant changes

<sup>1</sup> Information contained in the Department's HDMS is dynamic and updated on a periodic basis. Any information, therefore, is likely to become outdated shortly after its release. Such information is intended to serve as a guide regarding what species may be found in a particular area. It does not represent the results of comprehensive species-specific surveys.

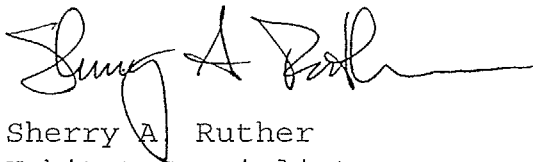
Mr. Hetland  
January 7, 1999  
2

are made. However, because the Department has no mandated authority for the State's plant resources, we encourage you to contact the Arizona Department of Agriculture for additional information regarding potential restrictions which may apply to the salvage or removal of plant species. A suggested contact is:

Mr. James McGinnis  
Manager, Native Plant Law  
Plant Services Division  
Arizona Dept. of Agriculture  
1688 W. Adams  
Phoenix, Arizona 85007  
602/542-3292

Please give me a call at 520/628-5982 Ext. 137 if you have questions.

Sincerely,



Sherry A. Ruther  
Habitat Specialist

SAR:sr

Attachment

cc: John Kennedy, Project Evaluation Program Supervisor, Habitat  
Branch, PHX (AGFD Log No. 12-31-98/02)  
Steve Najar, District Wildlife Manager  
James McGinnis, AZ Dept. Of Ag, Plant Services Div., PHX

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Mr. Hetland  
January 7, 1999  
3

ATTACHMENT A  
SPECIAL STATUS SPECIES  
AVRA VALLEY AIRPORT MASTER PLAN

	<u>COMMON NAME</u>	<u>SCIENTIFIC NAME</u>	<u>STATUS</u>
*023	Gila monster	<i>Heloderma suspectum</i>	S
	Pima indian mallow	<i>Abutilon parishii</i>	S,SR
	Pringle lip fern	<i>Cheilanthes pringlei</i>	S
	Sonoran desert tortoise	<i>Gopherus agassizii</i>	WC,S
*047	Thornber fishhook cactus	<i>Mammillaria thornberi</i>	SR
	Tumamoc globeberry	<i>Tumamoca macdougalii</i>	S,SR

STATUS DEFINITIONS

WC - Wildlife of Special Concern in Arizona. Species whose occurrence in Arizona is or may be in jeopardy, or with known or perceived threats or population declines, as described by the Department's listing of Wildlife of Special Concern in Arizona (WSCA, in prep.). Species included in WSCA are currently the same as those in Threatened Native Wildlife in Arizona (1988).

S - Sensitive. Species classified as "sensitive" by the Regional Forester when occurring on lands managed by the U.S.D.A. Forest Service.

SR - Salvage Restricted. Those Arizona native plants not included in the Highly Safeguarded Category, but that have a high potential for theft or vandalism, as described by the Arizona Native Plant Law (1993).



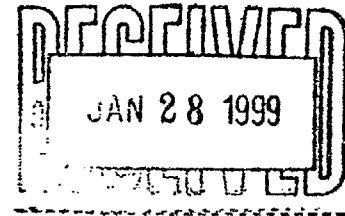
**United States  
Department of  
Agriculture**

Natural  
Resources  
Conservation  
Service

3003 N. Central Ave.  
Suite 800  
Phoenix, AZ  
85012-2945

Mr. Bill Hetland  
Planner  
Coffman Associates  
11022 N. 28<sup>th</sup> Drive, Suite 240  
Phoenix, Arizona 85029

January 25, 1999



Dear Mr. Hetland:

This response is in regards to your letter dated December 11, 1998 concerning the airport master plan in Marana, Arizona.

The Natural Resources Conservation Service (NRCS) has general responsibility, nationwide, for implementing the Farmland Protection Policy Act (FPPA) and to review projects that may affect prime farmland and/or wetlands associated with agriculture. After reviewing the information provided, the following is noted:

- 1- The Avra Valley Airport plan, if implemented as planned, is exempt from the requirements of the FPPA - as revised in 1994, that excludes land which is already in or is committed to urban development, currently used as water storage, or land that is not prime or unique farmland.
- 2- We do not see any immediate concerns or impacts that would directly affect wetland areas associated with agricultural activities.

Should you have questions please feel free contact Jeff Schmidt, Community Assistance Coordinator at 602/280.8818. Thank you again for the chance to review the proposed project.

Sincerely,

MICHAEL SOMERVILLE  
State Conservationist

cc:

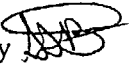
Ralph Ware, District Conservationist, NRCS, Tucson, Arizona  
Jim Briggs, Assistant State Conservationist, NRCS, Phoenix, Arizona  
Jeff Schmidt, Community Assistance Coordinator, NRCS, Phoenix, Arizona

*Technical Memorandum, RE: Biological Evaluation  
for Avra Valley Airport*

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October 22, 1997

## TECHNICAL MEMORANDUM

TO: Ms. Becky Sayre Pearson  
FROM: Scott Jay Bailey   
CC: Project File 97229-S-003  
RE: BIOLOGICAL EVALUATION FOR AVRA VALLEY AIRPORT

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This technical memorandum provides biological resources information needed to complete a Notice of Intent (NOI) form for Multi-Sector General Permits (MSGP) for storm water discharges at the Avra Valley airport. No species identified in Addendum H (60 FR 51278) or any other federally listed species in Pima County (see attached) are known to occur in proximity (as defined in Addendum H<sup>1</sup>) to the facility, nor are storm water discharges from the facility likely to adversely affect any federally listed species occurring in Pima County. The following sections summarize the results of a biological evaluation completed at the airport on 8 October 1997.

The Avra Valley Airport is located northwest of Tucson in Sections 3, 4, 9, and 10, T12S, R11E (Figure 1). Dames and Moore, Inc. (1996) has completed a Storm Water Pollution Prevention Plan (SWPPP) for the facility<sup>2</sup>. The SWPPP identifies potential pollution sources, Best Management Practices (BMPs), and on-site drainage patterns. Potential pollution sources at the facility include aviation fuel, motor fuel, Stoddard solvent, motor oil, soiled rags, and oil-absorbent towels. No aircraft deicing fluids are used at the facility. BMPs (processes, procedures, schedules of activities, prohibitions on practices, and other management practices that prevent or reduce the discharge of pollutants in storm water runoff) have been implemented at the facility. Surface storm water is collected at catch basins and is routed through underground storm drains to two open drainage channels (one each on the east and west sides of the facility). Storm water in the drainage channels exits the north end of the facility at two outfalls. Formerly, water exiting the facility discharged into the Santa Cruz River (approximately 0.75 miles to the north). An irrigation channel constructed by an adjacent landowner to convey water from the Central Arizona Project canal prevents discharges from reaching the Santa Cruz River and under current conditions, storm water exiting the facility pools on the upstream side of the irrigation channel.

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<sup>1</sup> A species is in proximity to a facility's storm water discharge when the species is 1) located in the path or immediate area through which or over which contaminated point source storm water flows from industrial activities to the point of discharge into the receiving water, 2) located in the immediate vicinity of, or nearby, the point of discharge into receiving waters, or 3) located in the area of a site where storm water BMPs are planned or are to be constructed (60 FR 51278).

<sup>2</sup> Dames and Moore. 1996. Storm water pollution prevention plan for Avra Valley Airport. Unpublished report. 12 pp.

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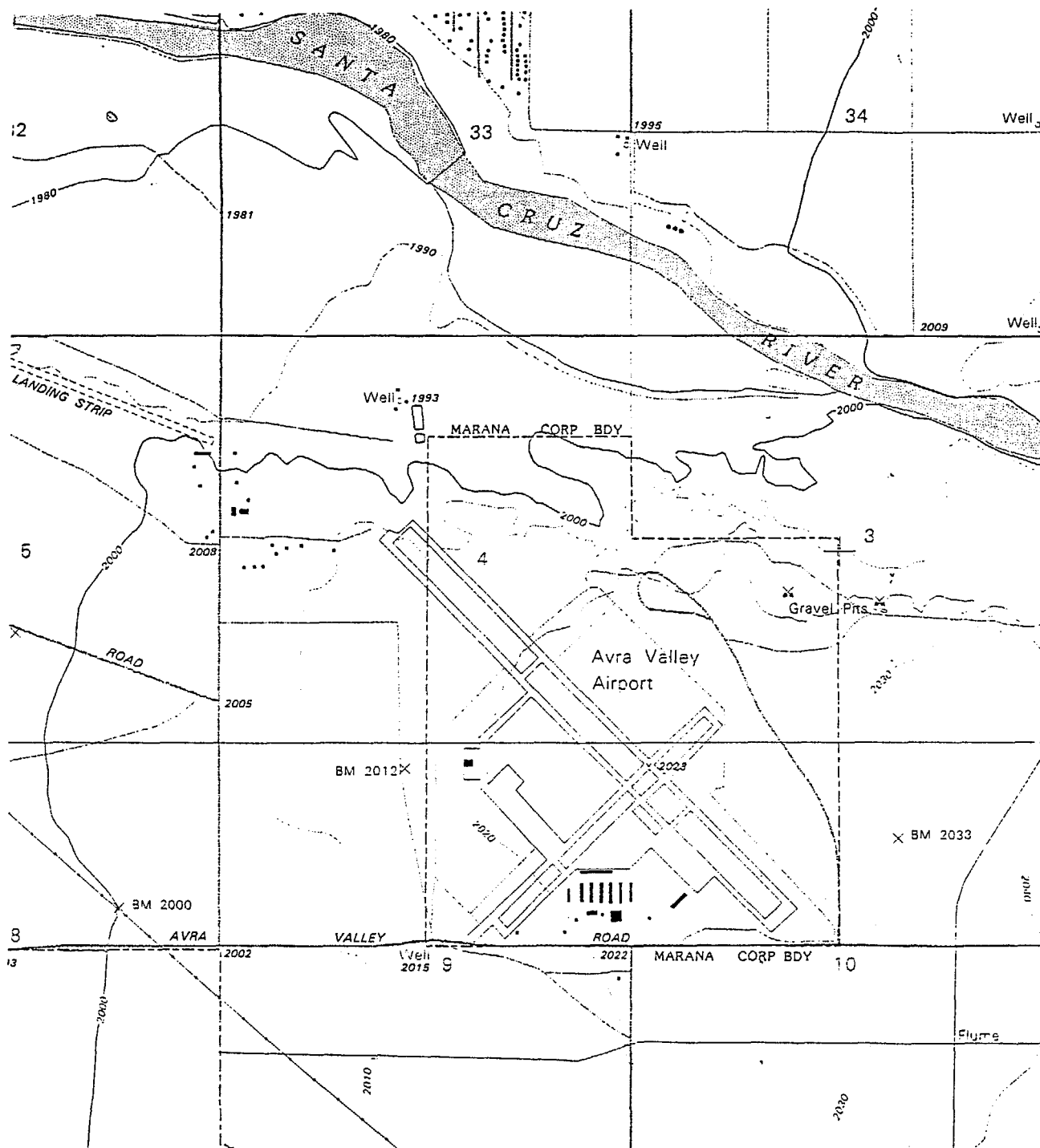
Ms. Becky Sayre Pearson  
October 22, 1997  
Page 2 of 2

The Avra Valley airport occurs within the Lower Colorado subdivision of the Sonoran desertscrub biotic community<sup>3</sup>. The facility has been in existence since the 1940s and there has been considerable human alteration of the grounds. Much of the area has been paved and many unpaved areas within the facility are bare ground devoid of vegetation. Common and conspicuous plant species on vegetated portions of the facility include mesquite (*Prosopis juliflora*), desert broom (*Baccharis sarothroides*), blue palo verde (*Cercidium floridum*), and burro weed (*Isocoma tenuisecta*). Vegetation is most dense near and along the open drainage channels.

No federally listed threatened, endangered, or candidate species occurring in Pima County (see attached) were observed during a field visit to the Avra Valley airport, and given the available habitats within and adjacent to the facility, none are likely to occur. In addition, based on available habitats, no federally threatened, endangered, or candidate species are likely to occur in proximity (as defined in Addendum H) to storm water discharges from the facility. Established BMPs appear adequate to reduce or prevent discharge of pollutants from the facility. Therefore, it is extremely unlikely that storm water discharged from the facility would adversely impact any threatened, endangered, or candidate species occurring in Pima County.

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<sup>3</sup> Brown, D.E. 1982. Biotic communities of the American Southwest — United States and Mexico. Desert Plants 4(1-4):1-342.



T12S, R11E, Sections 3, 4, 9, and 10

0 0.5 1  
MILES

CONTOUR INTERVAL 20 FEET  
BASE MAP U.S.G.S. 7.5' QUADRANGLE:  
Marana, Arizona

**WestLand Resources, Inc.**  
Engineering and Environmental Consultants  
2343 E. Broadway Blvd., Suite 202 Tucson, Arizona 85719  
520.206.9585 Fax 520.206.9516

Figure  
1

Pima County Department of  
Transportation and Flood Control District  
Avra Valley and Ajo Airports

Avra Valley Airport Location

LISTED, PROPOSED, AND CANDIDATE SPECIES FOR THE FOLLOWING COUNTY:

PIMA

3/19/97

LISTED TOTAL= 17

NAME: HUACHUCA WATER UMBEL

*LILAEOPSIS SCHAFFNERIANA ssp RECURVA*

STATUS: ENDANGERED CRITICAL HABITAT: No RECOVERY PLAN: No CFR: 62 FR 665, 01-06-97

DESCRIPTION: HERBACEOUS, SEMI-AQUATIC PERENNIAL IN THE PARSLEY FAMILY (UMBELLIFERAE) WITH SLENDER ERECT, HOLLOW, LEAVES THAT GROW FROM THE NODES OF CREEPING RHIZOMES. FLOWER: 3 TO 10 FLOWERED UMBELS ARISE FROM ROOT NODES.

ELEVATION  
RANGE: 3500-6500 FT.

COUNTIES: PIMA, SANTA CRUZ, COCHISE

HABITAT: CIENEGAS, PERENNIAL LOW GRADIENT STREAMS, WETLANDS

AND IN ADJACENT SONORA, MEXICO, WEST OF THE CONTINENTAL DIVIDE. POPULATIONS ALSO ON FORT HUACHUCA MILITARY RESERVATION.

NAME: KEARNEY'S BLUE STAR

*AMSONIA KEARNEYANA*

STATUS: ENDANGERED CRITICAL HABITAT: No RECOVERY PLAN: Yes CFR: 54 FR 2131, 01-19-1989

DESCRIPTION: A HERBACEOUS PERENNIAL IN THE DOGBANE FAMILY (APOCYNACEAE). THICKENED WOODY ROOT AND MANY PUBESCENT (HAIRY) STEMS THAT RARELY BRANCH. FLOWERS: WHITE TERMINAL INFLORESCENCE IN APRIL & MAY.

ELEVATION  
RANGE: 3600-3800 FT.

COUNTIES: PIMA

HABITAT: WEST-FACING DRAINAGES IN THE BABOQUIVARI MOUNTAINS.

PLANTS GROW IN STABLE, PARTIALLY SHADED, COARSE ALLUVIUM ALONG A DRY WASH IN THE BABOQUIVARI MOUNTAINS. RANGE IS EXTREMELY LIMITED. PROTECTED BY ARIZONA NATIVE PLANT LAW.

NAME: NICHOL'S TURK'S HEAD CACTUS

*ECHINOCACTUS HORIZONTHALONIUS VAR NICHOLII*

STATUS: ENDANGERED CRITICAL HABITAT: No RECOVERY PLAN: No CFR: 44 FR 61927, 10-26-1979

DESCRIPTION: BLUE-GREEN TO YELLOWISH-GREEN, COLUMNAR, 18 INCHES TALL, 8 INCHES IN DIAMETER. SPINE CLUSTERS HAVE 5 RADIAL & 3 CENTRAL SPINES; ONE DOWNWARD SHORT; 2 SPINES UPWARD AND RED OR BASALLY GRAY. FLOWER: PINK FRUIT: WOOLLY WHITE

ELEVATION  
RANGE: 2400-4100 FT.

COUNTIES: PINAL, PIMA, YUMA

HABITAT: SONORAN DESERTSCRUB

FOUND IN UNSHADED MICROSITES IN SONORAN DESERTSCRUB ON DISSECTED ALLUVIAL FANS AT THE FOOT OF LIMESTONE MOUNTAINS AND ON INCLINED TERRACES AND SADDLES ON LIMESTONE MOUNTAINSIDES.

LISTED, PROPOSED, AND CANDIDATE SPECIES FOR THE FOLLOWING COUNTY:

PIMA

3/19/97

NAME: MEXICAN GRAY WOLF

*CANIS LUPUS BAILEYI*

STATUS: ENDANGERED

CRITICAL HABITAT: No RECOVERY PLAN: Yes CFR: 32 FR 4001, 03-11-67; 43

DESCRIPTION: LARGE DOG-LIKE CARNIVORE WITH VARYING COLOR, BUT USUALLY A  
SHADE OF GRAY. DISTINCT WHITE LIP LINE AROUND MOUTH. WEIGH 60-  
90 POUNDS.

FR 1912, 03-09-78

ELEVATION

RANGE: 4,000-12,000 FT.

COUNTIES: COCHISE, PIMA, SANTA CRUZ

HABITAT: CHAPPARAL, WOODLAND, AND FORESTED AREAS. MAY CROSS DESERT AREAS.

HISTORIC RANGE IS CONSIDERED TO BE LARGER THAN THE COUNTIES LISTED ABOVE. UNCONFIRMED REPORTS  
OF INDIVIDUALS IN THE SOUTHERN PART OF THE STATE CONTINUE TO BE RECEIVED. INDIVIDUALS MAY STILL  
PERSIST IN MEXICO.

NAME: OCELOT

*FELIS PARDALIS*

STATUS: ENDANGERED

CRITICAL HABITAT: No RECOVERY PLAN: Yes CFR: 47 FR 31670; 07-21-82

DESCRIPTION: MEDIUM-SIZED SPOTTED CAT WHOSE TAIL IS ABOUT 1/2 THE LENGTH  
OF HEAD AND BODY. YELLOWISH WITH BLACK STREAKS AND STRIPES  
RUNNING FROM FRONT TO BACK. TAIL IS SPOTTED AND FACE IS LESS  
HEAVILY STREAKED THAN THE BACK AND SIDES.

ELEVATION

RANGE: <8000 FT.

COUNTIES: SANTA CRUZ, PIMA, COCHISE

HABITAT: HUMID TROPICAL & SUB-TROPICAL FORESTS, SAVANNAHS, AND SEMI-ARID THORNSCRUB.

MAY PERSIST IN PARTLY-CLEARED FORESTS, SECOND-GROWTH WOODLAND, AND ABANDONED CULTIVATION  
REVERTED TO BRUSH. UNIVERSAL COMPONENT IS PRESENCE OF DENSE COVER. UNCONFIRMED REPORTS OF  
INDIVIDUALS IN THE SOUTHERN PART OF THE STATE CONTINUE TO BE RECEIVED.

NAME: SONORAN PRONGHORN

*ANTILOCAPRA AMERICANA SONORIENSIS*

STATUS: ENDANGERED

CRITICAL HABITAT: No RECOVERY PLAN: Yes CFR: 32 FR 4001, 03-11-67

DESCRIPTION: BUFF ON BACK AND WHITE BELOW, HOOFED WITH SLIGHTLY CURVED  
BLACK HORNS HAVING A SINGLE PRONG. SMALLEST AND PALEST OF  
THE PRONGHORN SUBSPECIES.

ELEVATION

RANGE: 2000-4000 FT.

COUNTIES: PIMA, YUMA, MARICOPA

HABITAT: BROAD, INTERMOUNTAIN ALLUVIAL VALLEYS WITH CREOSOTE-BURSAGE & PALO VERDE-MIXED CACTI  
ASSOCIATIONS

TYPICALLY, BAJADAS ARE USED AS FAWNING AREAS AND SANDY DUNE AREAS PROVIDE FOOD SEASONALLY.  
HISTORIC RANGE WAS PROBABLY LARGER THAN EXISTS TODAY. THIS SUBSPECIES ALSO OCCURS IN MEXICO.

LISTED, PROPOSED, AND CANDIDATE SPECIES FOR THE FOLLOWING COUNTY:

PIMA

3/19/97

NAME: BALD EAGLE

*HALIAEETUS LEUCOCEPHALUS*

STATUS: THREATENED

CRITICAL HABITAT: No RECOVERY PLAN: Yes CFR: 60 FR 35999, 07-12-95

DESCRIPTION: LARGE, ADULTS HAVE WHITE HEAD AND TAIL. HEIGHT 28 - 38";  
WINGSPAN 66 - 96". 1-4 YRS DARK WITH VARYING DEGREES OF  
MOTTLED BROWN PLUMAGE. FEET BARE OF FEATHERS.

ELEVATION

RANGE: VARIES FT.

COUNTIES: YUMA, LA PAZ, MOHAVE, YAVAPAI, MARICOPA, PINAL, COCONINO, NAVAJO, APACHE, SANTA CRUZ, PIMA,  
GILA, GRAHAM

HABITAT: LARGE TREES OR CLIFFS NEAR WATER (RESERVOIRS, RIVERS AND STREAMS) WITH ABUNDANT PREY

SOME BIRDS ARE NESTING RESIDENTS WHILE A LARGER NUMBER WINTERS ALONG RIVERS AND RESERVOIRS.  
AN ESTIMATED 200 TO 300 BIRDS WINTER IN ARIZONA. ONCE ENDANGERED (32 FR 4001, 03-11-1967; 43 FR 6233, 02-  
14-78) BECAUSE OF REPRODUCTIVE FAILURES FROM PESTICIDE POISONING AND LOSS OF HABITAT, THIS  
SPECIES WAS DOWN LISTED TO THREATENED ON AUGUST 11, 1995. ILLEGAL SHOOTING, DISTURBANCE, LOSS OF  
HABITAT CONTINUES TO BE A PROBLEM.

NAME: CACTUS FERRUGINOUS PYGMY-OWL

*GLAUCIDIUM BRASILIANUM CACTORUM*

STATUS: ENDANGERED

CRITICAL HABITAT: No RECOVERY PLAN: No CFR: 62 FR 10730, 3-10-97

DESCRIPTION: SMALL (APPROX. 7"), DIURNAL OWL REDDISH BROWN OVERALL WITH  
CREAM-COLORED BELLY STREAKED WITH REDDISH BROWN. SOME  
INDIVIDUALS ARE GRAYISH BROWN

ELEVATION

RANGE: <4000 FT.

COUNTIES: MARICOPA, YUMA, SANTA CRUZ, GRAHAM, GREENLEE, PIMA, PINAL, GILA, YAVAPAI

HABITAT: MATURE COTTONWOOD/WILLOW, MESQUITE BOSQUES, AND SONORAN DESERTSCRUB

RANGE LIMIT IN ARIZONA IS FROM NEW RIVER (NORTH) TO GILA BOX (EAST) TO CABEZA PRIETA MOUNTAINS  
(WEST). ONLY A FEW DOCUMENTED SITES WHERE THIS SPECIES PERSISTS ARE KNOWN, ADDITIONAL SURVEYS  
ARE NEEDED. LISTING EFFECTIVE APRIL 9, 1997.

NAME: MASKED BOBWHITE

*COLINUS VIRGINIANUS RIDGEWAYI*

STATUS: ENDANGERED

CRITICAL HABITAT: No RECOVERY PLAN: Yes CFR: 35 FR 4001, 03-11-1967; 35

DESCRIPTION: MALES BRICK-RED BREAST AND BLACK HEAD AND THROAT. FEMALES  
ARE GENERALLY NONDESCRIPT BUT RESEMBLE OTHER RACES SUCH  
AS THE TEXAS BOBWHITE.

ELEVATION

RANGE: 1000-4000 FT.

COUNTIES: PIMA

HABITAT: DESERT GRASSLANDS WITH DIVERSITY OF DENSE NATIVE GRASSES, FORBS AND BRUSH

SPECIES IS CLOSELY ASSOCIATED WITH ACACIA ANGUSTISSIMA. FORMERLY OCCURRED IN ALTAR AND SANTA  
CRUZ VALLEYS, AS WELL AS SONORA, MEXICO. PRESENTLY ONLY KNOWN FROM REINTRODUCED POPULATION  
ON BUENOS AIRES.

LISTED, PROPOSED, AND CANDIDATE SPECIES FOR THE FOLLOWING COUNTY:

PIMA

3/19/97

PROPOSED TOTAL= 2

NAME: SAN XAVIER TALUSSNAIL

*SONORELLA EREMITA*

STATUS: PROPOSED ENDANGERED CRITICAL HABITAT: No RECOVERY PLAN: No CFR: 56 FR 13691, 03-23-1994

DESCRIPTION: LESS THAN ONE INCH (AVE 19 MM), LIGHT BROWN, PILL SHAPED, DARK STRIPE ENCIRCLES OUTER PERIMETER

ELEVATION

RANGE: 3850 - 3920 FT.

COUNTIES: PIMA

HABITAT: LIMESTONE TALUS ON NORTHSIDE OF A SINGLE HILL.

NAME: JAGUAR, UNITED STATES POPULATION

*PANTHERA ONCA*

STATUS: PROPOSED ENDANGERED CRITICAL HABITAT: No RECOVERY PLAN: No CFR: 59 FR 35674; 7-13-94

DESCRIPTION: MUSCULAR CAT WITH RELATIVELY SHORT, MASSIVE LIMBS AND A DEEP-CHESTED BODY. CINNAMON-BUFF IN COLOR WITH BLACK SPOTS.

ELEVATION

RANGE: <8000 FT.

COUNTIES: COCHISE, PIMA, SANTA CRUZ

HABITAT: IN ARIZONA, RANGED WIDELY THROUGHOUT A VARIETY OF HABITATS FROM SONORAN DESERT TO CONIFER FORESTS

MOST RECORDS ARE FROM THE MADREAN EVERGREEN-WOODLAND, SHRUB-INVADDED SEMI-DESERT GRASSLAND, AND ALONG RIVERS. HISTORIC RANGE IS CONSIDERED TO HAVE EXTENDED BEYOND THE COUNTIES LISTED ABOVE. REPORTS OF INDIVIDUALS IN THE SOUTHERN PART OF THE STATE CONTINUE TO BE RECEIVED. THIS SPECIES IS LISTED AS ENDANGERED FROM THE U.S.-MEXICO BORDER SOUTH. LAST CONFIRMED INDIVIDUAL WAS KILLED IN ARIZONA IN 1991, SINCE THEN UNCONFIRMED SIGHTINGS AND TRACKS CONTINUE TO BE REPORTED.

LISTED, PROPOSED, AND CANDIDATE SPECIES FOR THE FOLLOWING COUNTY:

PIMA

3/19/97

NAME: MOUNTAIN PLOVER

*CHARADRIUS MONTANUS*

STATUS: CANDIDATE

CRITICAL HABITAT: No RECOVERY PLAN: No CFR:

DESCRIPTION:

ELEVATION

RANGE: 0 FT.

COUNTIES: YUMA, SANTA CRUZ, PIMA, COCHISE

HABITAT:

NAME: CHIRICAHUA LEOPARD FROG

*RANA CHIRICAHUENSIS*

STATUS: CANDIDATE

CRITICAL HABITAT: No RECOVERY PLAN: No CFR: 59 FR 58996

DESCRIPTION: CREAM COLORED TUBERCULES (spots) ON A DARK BACKGROUND ON  
THE REAR OF THE THIGH, DORSOLATERAL FOLDS THAT ARE  
INTERRUPTED AND DEFLECTED MEDIALY, AND A CALL GIVEN OUT OF  
WATER DISTINGUISH THIS SPOTTED FROG FROM OTHER LEOPRD

ELEVATION

RANGE: 3000-8300 FT.

COUNTIES: SANTA CRUZ, APACHE, GILA, PIMA, COCHISE, GREENLEE, GRAHAM, YAVAPAI, COCONINO, NAVAJO

HABITAT: STREAMS, RIVERS, BACKWATERS, PONDS, AND STOCK TANKS THAT ARE FREE FROM INTRODUCED FISH  
AND BULLFROGS

REQUIRE PERMANENT OR NEARLY PERMANENT WATER SOURCES. POPULATIONS NORTH OF THE GILA RIVER ARE  
THOUGHT TO BE CLOSELY-RELATED, BUT DISTINCT, UNDESCRIBED SPECIES.